REPORT NUMBER: 208-MGA-2005-017

VEHICLE SAFETY COMPLIANCE TESTING FOR FMVSS 208, OCCUPANT CRASH PROTECTION FMVSS 212, WINDSHIELD MOUNTING FMVSS 219, WINSHIELD INTRUSION (PARTIAL) FMVSS 301, FUEL SYSTEM INTEGRITY

Hyundai Motor Company
2005 Hyundai Santa Fe
NHTSA No.: C50510

PREPARED BY:
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Test Dates: April 20, 2005 – April 19, 2006

Final Report Date: November 1, 2006

FINAL REPORT

PREPARED FOR:
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16. Abstract Compliance tests were conducted on the subject 2005 Hyundai Santa Fe in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-12 and TP208-13 for the determination of FMVSS 208 compliance. Test failures identified were as follows: TEST FAILURES: The vehicle did not meet the suppression performance requirements of FMVSS 208; S22.2.2.4; sitting on seat edge, spine vertical, hands by the 6-year-old child's sides. Complete details are available in Section 4, Page 6; Discussion of Tests. Hyundai issued recall 074 (NHTSA recall number 05V450000) to remedy this noncompliance.			
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SECTION 1

PURPOSE OF COMPLIANCE TEST

The tests performed are part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-03-D-11002. The purpose of this test was to determine whether the subject vehicle, a 2005 Hyundai Santa Fe, NHTSA No. C50510, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity". The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No. TP208-12 dated January 14, 2003 and TP208-13 dated July 27, 2005.

SECTION 2

TESTS PERFORMED

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
NHTSA No.: C50510
Test Dates: 4/20/05-4/19/06

The following checked items indicate the tests that were performed:

- [X] 1. Rear outboard seating position seat belts (S4.1.1.2(b) & (S4.2.4)
- [X] 2. Air bag labels (S4.5.1)
- [X] 3. Readiness indicator (S4.5.2)
- [X] 4. Passenger air bag manual cut-off device (S4.5.4)
- [X] 5. Lap belt lockability (S7.1.1.5)
- [X] 6. Seat belt warning system (S7.3)
- [X] 7. Seat belt contact force (S7.4.4)
- [X] 8. Seat belt latch plate access (S7.4.4)
- [X] 9. Seat belt retraction (S7.4.5)
- [X] 10. Seat belt guides and hardware (S7.4.6)
- [X] 11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R)
- [X] 12. Suppression tests with newborn infant (Part 572, Subpart K)
- [X] 13. Suppression tests with 3-year-old dummy (Part 572, Subpart P)
- [X] 14. Suppression tests with 6-year-old dummy (Part 572, Subpart N)
- [X] 15. Test of reactivation of the passenger air bag system with an unbelted 5th percentile female dummy
- [ ] 16. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R)
- [ ] 17. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P)
- [ ] 18. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N)
- [X] 19. Low risk deployment test with 5th female dummy (Part 572, Subpart O)
- [X] 20. Impact Tests
  - [ ] Frontal Oblique
    - [ ] Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
    - [ ] Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
  - [X] Frontal 0°
    - [ ] Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
    - [ ] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - [ ] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))

X		Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
X		Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
		40% Offset 0° Belted 5th male dummy driver and passenger (0 to 40 kmph) (S18.1)
	21.	Sled Test: unbelted 50th male dummy driver and passenger (S13)
	22.	FMVSS 204 Indicant Test
X	23.	FMVSS 212 Indicant Test
X	24.	FMVSS 219 Indicant Test
X	25.	FMVSS 301 Frontal Indicant Test

For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

The dynamic tests were recorded using high-speed film and high-speed digital video.

The vehicle did not meet the performance requirements of FMVSS 208; S22.2.2.4; sitting on seat edge, spine vertical, hands by the 6-year-old child's sides. Complete details are available in Section 4, Page 6; Discussion of Tests.

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 5/18/05

5th Percentile Female Low Risk Deployments

5th Percentile Female SN 511 Position 1 (Chin On Module) 5-18-05

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	8
Peak Nij (Nte)	1.0	0.4
Time (ms)	NA	41.6
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	8.9
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	241.8
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	0.1
Neck Tension	2070 N	699
Neck Compression	2520 N	6
Chest g	60 g	16
Chest Displacement	52 mm	5
Left Femur	6805 N	49
Right Femur	6805 N	49

Second stage fire time of 120 ms; Injuries calculated on 0 ms to 245 ms

5th Percentile Female SN 505 Position 2 (Chin On Rim) 2-14-06

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	10
Peak Nij (Nte)	1.0	0.6
Time (ms)	NA	13.4
Peak Nij (Ntf)	1.0	0.1
Time (ms)	NA	26.1
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	189.5
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	95.8
Neck Tension	2070 N	667
Neck Compression	2520 N	85
Chest g	60 g	27
Chest Displacement	52 mm	17
Left Femur	6805 N	33
Right Femur	6805 N	55

Second stage fire time of 120 ms; Injuries calculated on 0 ms to 245 ms

SECTION 3...(continued)

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/19/06

40 kmph Frontal Crash

Impact Angle: Zero degrees

Belted Dummies: __Yes _X_ No
Speed Range: ___ 0 to 40 kmph _X_ 32 to 40 kmph
___ 0 to 48 kmph ___ 0 to 56 kmph

Test Speed: 39.8 kmph Test Weight: 1955.4 kg

Driver Dummy: _X_ 5th female ___ 50th male
Passenger Dummy: _X_ 5th female ___ 50th male

5th Percentile Female Frontal Crash Test
Vehicles certified to S16.1(a), S16.1(b), or S18.1

Injury Criteria	Max. Allowable Injury Assessment Values	Driver	Passenger
HIC15	700	48	95
N_{te}	1.0	0.8	0.2
N_{tf}	1.0	0.2	0.3
N_{ce}	1.0	0.5	0.2
N_{cf}	1.0	0.2	0.1
Neck Tension	2620 N	1298	948
Neck Compression	2520 N	532	487
Chest g	60 g	33	39
Chest Displacement	52 mm	19	7
Left Femur	6805 N	4541	5292
Right Femur	6805 N	3779	3965

SECTION 4

DISCUSSION OF TESTS

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
NHTSA No.: C50510
Test Dates: 4/20/05-4/19/06

The vehicle did not meet the performance requirements of FMVSS 208; S22.2.2.4; sitting on seat edge, spine vertical, hands by the 6-year-old child's sides. Due to this problem with the vehicle suppression system, multiple suppression tests were conducted. Hyundai conducted a recall (NHTSA Recall 05V450000; Hyundai Recall 074) to fix this problem.

Due to the Not Suppressed results from 5-18-2005 for 6-Year-Old Child (S24.2.1) in Position 3; multiple tests were conducted for Position 3.

Prior to having the above recall performed on the test vehicle, suppression and reactivation tests were conducted on January 11, 2006 to verify the current status of the passenger occupant classification system. These tests were conducted using dummies and human subjects for air bag reactivation as shown in the Table below:

1-12-month-old suppression with Britax Roundabout 161 child restraint w/ 120 to 130 lb female human reactivation in the full rear seat track position
1-3-year-old suppression with Century Next Step booster seat w/ dummy 5th female reactivation in the mid track seat position
1-6-year-old suppression with Century Next Step booster seat w/ 120 to 130 lb female human reactivation in the full forward seat track position
1-6-year-old suppression Cosco High Back Booster seat w/ 120 to 130 lb female human reactivation in the full forward seat track position

Following service for Hyundai Recall 074, the same sequence of suppression tests performed from May 11 to May 18, 2005 was conducted from January 18 to January 23, 2006. These tests were conducted using dummies and 6-year-old human subjects. The system successfully suppressed the 6-year-old human subject per FMVSS 208; S22.2.2.4.

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

During the frontal impact a data shift occurred in the vehicle data acquisition system. This resulted in vehicle and ATD test data being shifted in relation to its scale factor between 74.5 milliseconds and 100.9 milliseconds. The shift was removed with a software routine and all other data was left unaffected.

Due to the length of time needed for testing, the tests were conducted in accordance with OVSC Laboratory Test Procedure No. TP208-12 dated January 14, 2003 and TP208-13 dated July 27, 2005 as appropriate for their test date.

SECTION 5

TEST DATA SHEETS

Test Vehicle:	2005 Hyundai Santa Fe	NHTSA No.:	C50510
Test Program:	FMVSS 208 Compliance	Test Dates:	4/20/05-4/19/06

DATA SHEET 1

COTR VEHICLE WORK ORDER

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance

NHTSA No.: C50510
Test Dates: 4/20/05-4/19/06

COTR Signature: Charles R. Case

Test to be performed for this vehicle are checked below:

X	1.	Rear Outboard Seating Position Seat Belts (S4.1.2(b)) & (S4.2.4)
X	2.	Air Bag Labels (S4.5.1)
X	3.	Readiness Indicator (S4.5.2)
X	4.	Passenger Air Bag Manual Cut-off Device (S4.5.4)
X	5.	Lap Belt Lockability (S7.1.1.5)
X	6.	Seat Belt Warning System (S7.3)
X	7.	Seat Belt Contact Force (S7.4.4)
X	8.	Seat Belt Latch Plate Access (S7.4.4)
X	9.	Seat Belt Retraction (S7.4.5)
X	10.	Seat Belt Guides and Hardware (S7.4.6)
X	11.	Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints.

Section B

X	Britax Handle with Care 191	X	Full Rearward	X	Mid Position	X	Full Forward
	Century Assura 4553		Full Rearward		Mid Position		Full Forward
	Century Avanta SE 41530		Full Rearward		Mid Position		Full Forward
	Century Smart Fit 4543		Full Rearward		Mid Position		Full Forward
	Cosco Arriva 02727		Full Rearward		Mid Position		Full Forward
	Cosco Opus 35 02603		Full Rearward		Mid Position		Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
X	Evenflo First Choice 204	X	Full Rearward	X	Mid Position	X	Full Forward
	Evenflo On My Way Position Right V 282		Full Rearward		Mid Position		Full Forward
X	Graco Infant 8457	X	Full Rearward	X	Mid Position	X	Full Forward

Section C

X	Britax Roundabout 161	X	Full Rearward	X	Mid Position	X	Full Forward
X	Century Encore 4612	X	Full Rearward	X	Mid Position	X	Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
X	Evenflo Medallion 254	X	Full Rearward	X	Mid Position	X	Full Forward

X	12.	Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints.

Section A

X	Cosco Dream Ride 02-719	X	Full Rearward	X	Mid Position	X	Full Forward

X	13.	Suppression tests with 3-year-old dummy (Part 572, Subpart P) using the following indicated child restraints where a child restraint is required.

Section C

X	Britax Roundabout 161	X	Full Rearward	X	Mid Position	X	Full Forward
X	Century Encore 4612	X	Full Rearward	X	Mid Position	X	Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
X	Evenflo Medallion 254	X	Full Rearward	X	Mid Position	X	Full Forward

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
X	Century Next Step 4920	X	Full Rearward	X	Mid Position	X	Full Forward
X	Cosco High Back Booster 02-442	X	Full Rearward	X	Mid Position	X	Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward

	14.	Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required. (Appendix H, Data Sheet 16H and 17H)

Section C

	Britax Roundabout 161		Full Rearward		Mid Position		Full Forward
	Century Encore 4612		Full Rearward		Mid Position		Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
	Evenflo Medallion 254		Full Rearward		Mid Position		Full Forward

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
	Century Next Step 4920		Full Rearward		Mid Position		Full Forward
	Cosco High Back Booster 02-442		Full Rearward		Mid Position		Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward

X	15.	Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following Forward, Middle, and Rearward seat track positions
X		Sitting on seat with back against seat back (S22.2.2.1)
X		Sitting on seat with back against reclined seat back (S22.2.2.2)
X		Sitting on seat with back not against seat back (S22.2.2.3)
X		Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
X		Standing on seat, facing forward (S22.2.2.5)
X		Kneeling on seat facing forward (S22.2.2.6)
X		Kneeling on seat facing rearward (S22.2.2.7)
X		Lying on seat (S22.2.2.8)
	16.	Suppression tests with representative 3-year-old child in the following positions
		Sitting on seat with back against seat back (S22.2.2.1)
		Sitting on seat with back against reclined seat back (S22.2.2.2)
		Sitting on seat with back not against seat back (S22.2.2.3)
		Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
		Standing on seat, facing forward (S22.2.2.5)
		Kneeling on seat facing forward (S22.2.2.6)
		Kneeling on seat facing rearward (S22.2.2.7)
		Lying on seat (S22.2.2.8)
X	17.	Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required.

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
X	Century Next Step 4920	X	Full Rearward	X	Mid Position	X	Full Forward
X	Cosco High Back Booster 02-442	X	Full Rearward	X	Mid Position	X	Full Forward
X	Evenflo Right Fit 245	X	Full Rearward	X	Mid Position	X	Full Forward

	18.	Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required.

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
	Century Next Step 4920		Full Rearward		Mid Position		Full Forward
	Cosco High Back Booster 02-442		Full Rearward		Mid Position		Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward

X	19.	Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following Forward, Middle, and Rearward seat track positions
X		Sitting on seat with back against seat back (S22.2.2.1)
X		Sitting on seat with back against reclined seat back (S22.2.2.2)
X		Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
X		Sitting back in the seat and leaning on the right front passenger door (S24.2.3)
	20.	Suppression tests with representative 6-year-old child in the following positions
		Sitting on seat with back against seat back (S22.2.2.1)
		Sitting on seat with back against reclined seat back (S22.2.2.2)
		Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
		Sitting back in the seat and leaning on the right front passenger door (S24.2.3)
X	21.	Test of Reactivation of the Passenger Air Bag System with an Unbelted 5th percentile female dummy (S20.3, 22.3, S24.3). Perform this test after the following suppression tests: After each restraint.
	22.	Test of Reactivation of the passenger air bag system with a representative 5th percentile female (S20.3, 22.3, S24.3). Perform this test after the following suppression tests:
	23.	Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) using the following indicated child restraints.

Section B

	Britax Handle with Care 191		Full Rearward		Mid Position		Full Forward
	Century Assura 4553		Full Rearward		Mid Position		Full Forward
	Century Avanta SE 41530		Full Rearward		Mid Position		Full Forward
	Century Smart Fit 4543		Full Rearward		Mid Position		Full Forward
	Cosco Arriva 02727		Full Rearward		Mid Position		Full Forward
	Cosco Opus 35 02603		Full Rearward		Mid Position		Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
	Evenflo First Choice 204		Full Rearward		Mid Position		Full Forward
	Evenflo On My Way Position Right V 282		Full Rearward		Mid Position		Full Forward
	Graco Infant 8457		Full Rearward		Mid Position		Full Forward

Section C

	Britax Roundabout 161		Full Rearward		Mid Position		Full Forward
	Century Encore 4612		Full Rearward		Mid Position		Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
	Evenflo Medallion 254		Full Rearward		Mid Position		Full Forward

- [ ] 24. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions
  - [ ] Position 1
  - [ ] Position 2
- [ ] 25. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions
  - [ ] Position 1
  - [ ] Position 2
- [X] 26. Low risk deployment test with 5th percentile female dummy (Part 572, Subpart O) in the following positions
  - [X] Position 1
  - [X] Position 2
- [X] 27. Impact Tests
  - [ ] Frontal Oblique – Test Speed:
    - [ ] Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
    - [ ] Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
  - [X] Frontal 0° - Test Speed: 39.8 kmph
    - [ ] Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
    - [ ] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - [ ] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - [X] Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
    - [X] Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
  - [ ] 40% Offset 0° Belted 5th male dummy driver and passenger (0 to 40 kmph) (S18.1) – Test Speed:
- [ ] 28. Sled Test: Unbelted 50th male dummy driver and passenger (S13)
- [ ] 29. FMVSS 204 Indicant Test
- [X] 30. FMVSS 212 Indicant Test
- [X] 31. FMVSS 219 Indicant Test
- [X] 32. FMVSS 301 Frontal Indicant Test

DATA SHEET 2

REPORT OF VEHICLE CONDITION

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Dates: 4/20/05-4/19/06

CONTRACT NO. DTNH22- 03-D-11002 Date: 4/28/06
FROM (Lab and rep name): MGA Research Corporation
TO: NHTSA, OVSC (NVS-220)

PURPOSE: (X) Initial Receipt ( ) Received via Transfer (X) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE:	2005 Hyundai Santa Fe		
MANUFACTURE DATE:	10/06/04		
NHTSA NO.	C50510	GVWR:	2307 kg (5086 lbs)
BODY COLOR:	Steel Blue	GAWR (Fr):	1250 kg (2756 lbs)
VIN:	KM8SC13EX5U890970	GAWR (Rr):	1300 kg (2866 lbs)

ODOMETER READINGS:	ARRIVAL (miles):	114	DATE:	3/17/05
	COMPLETION (miles):	125	DATE:	4/19/06
PURCHASE PRICE: ($)	23,295			
DEALER'S NAME:	Boucher Hyundai; 1421 E Moreland Blvd; Waukesha, WI 53186			

A. All options listed on window sticker are present on the test vehicle:
_X_Yes ___No
B. Tires and wheel rims are new and the same as listed: _X_Yes ___No
C. There are no dents or other interior or exterior flaws: _X_Yes ___No
D. The vehicle has been properly prepared and is in running condition:
_X_Yes ___No
E. Keyless remote is available and working: _X_ Yes __No
F. The glove box contains an owner's manual, warranty document, consumer information, and extra set of keys: _X_Yes ___No
G. Proper fuel filler cap is supplied on the test vehicle: _X_Yes ___No
H. Using permanent marker, identify vehicle with NHTSA number and FMVSS test type(s) on roof line above driver door or for school buses, place a placard with NHTSA number inside the windshield and to the exterior front and rear side of bus:
_X_Yes ___No
I. Place vehicle in storage area: _X_Yes ___No
J. Inspect the vehicle's interior and exterior, including all windows, seats, doors, etc. to confirm that each system is complete and functional per the manufacturer's specifications. Any damage, misadjustment, or other unusual condition that could influence the test program or test results shall be recorded. Report any abnormal condition to the NHTSA COTR before beginning any test:
_X_Vehicle OK ___Conditions reported below

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: FMVSS 208, 212, 219, 301

VEHICLE: 2005 Hyundai Santa Fe NHTSA NO. C50510

REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:

Spare tire tool kit and rear carpeting

Explanation for equipment removal:

None

Test Vehicle Condition:

25 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, radiator damaged, air bags & pretensioners deployed, Stoddard in fuel system

RECORDED BY: Jeff Lewandowski DATE: 4/28/06

APPROVED BY: David Winkelbauer DATE: 4/28/06

########## ##########

RELEASE OF TEST VEHICLE

The vehicle described above is released from MGA to be delivered to:

Date: Time: Odometer:

Lab Rep's Signature:

Title:

Carrier/Customer Rep:

Date:

DATA SHEET 3

CERTIFICATION LABEL AND TIRE PLACARD INFORMATION

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/19/06

Certification Label	
Manufacturer:	Hyundai Motor Company
Date of Manufacture:	10/06/04
VIN:	KM8SC13EX5U890970
Vehicle Certified As (Pass. Car/MPV/Truck/Bus):	MPV
Front Axle GVWR:	1250 kg (2756 lbs)
Rear Axle GVWR:	1300 kg (2866 lbs)
Total GVWR:	2307 kg (5086 lbs)

Tire Placard	
Not applicable, vehicle is not a passenger car and does not have a tire placard.	YES (MPV)
This is not a passenger car, but all or part of this information is still contained on a vehicle label and is reported here.	YES (MPV)
Vehicle Capacity Weight:	400 kg (880 lbs)
Designated Seating Capacity Front:	2
Designated Seating Capacity Rear:	3
Total Designated Seating Capacity:	5
Recommended Cold Tire Inflation Pressure Front:	210 kpa (30 psi)
Recommended Cold Tire Inflation Pressure Rear:	210 kpa (30 psi)
Recommended Tire Size:	P225/70R16

Signature: Nick Kosinski

Date: 4/19/06

DATA SHEET 4

REAR OUTBOARD SEATING POSITION SEAT BELTS

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/20/05

	Yes	No
Do all rear outboard seating positions have Type 2 seat belts?	**X**	

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a Type 2 seat belt was not installed.

REMARKS:

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 5

AIR BAG LABELS (S4.5.1)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/20/05

[X] 1. Air bag maintenance label and owner's manual instructions: (S4.5.1(a))

[X] 1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?

[ ] Yes, go to 1.2
[X] No – go to 2

[ ] 1.2 Does the vehicle have a label specifying air bag maintenance or replacement?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.3 Does the label contain one of the following?

[ ] Yes – Pass
[ ] No – Fail

Check applicable schedule:

__ Schedule on label specifies month and year (Record date_____)

__ Schedule on label specified vehicle mileage (Record mileage_____)

__ Schedule on label specifies interval measured from date on certification label (Record interval_____)

[ ] 1.4 Is the label permanently affixed within the passenger compartment such that it cannot be removed without destroying or defacing the label or the sunvisor?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.5 Is the label lettered in English?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.6 Is the label in block capitals and numerals?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.7 Are the letters and numerals at least 3/32 inches high?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.8 Does the owner's manual set forth the recommended schedule for maintenance or replacement?

[X] 2. Does the owner's manual: (S4.5.1(f))

[X] 2.1 Include a description of the vehicle's air bag system in an easily understandable format?

[X] Yes – Pass
[ ] No – Fail

[X] 2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating position?

[X] Yes – Pass
[ ] No – Fail

X 2.3 Include a statement that the air bag is a supplement restraint at the front outboard seating position?

X Yes – Pass
No – Fail

X 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?

X Yes – Pass
No – Fail

X 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?

X Yes – Pass
No – Fail

X 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?

X Yes – Pass
No – Fail

X 2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain answer from COTR) (S4.5.1(f)(2))

X Yes – (Go to 2.7.1)
No – (Go to 3.)

X 2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))

X Yes – Pass
No – Fail

X 2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))

X Yes – Pass
No – Fail

X 2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))

X Yes – Pass
No – Fail

X 2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1(f)(2)(ii))

X Yes – Pass
No – Fail

X 2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))

X Yes – Pass
No – Fail

X 2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2, or 23.2 (automatic suppression)?

X Yes, continue with 2.7.6
No, go to 2.7.7

[X] 2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))

[X] Yes – Pass
[ ] No – Fail

[X] 2.7.6.2 Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?

[X] Yes – Pass
[ ] No – Fail

[X] 2.7.7 Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))

[X] Yes – Pass
[ ] No – Fail

[X] 2.7.8 Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))

[X] Yes – Pass
[ ] No – Fail

[X] 2.7.9 Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that my affect the advanced air bag system? (S4.5.1(f)(2)(vii))

[X] Yes – Pass
[ ] No – Fail

[X] 3. Sun Visor Air Bag Warning Label (S4.5.1(b)) Check only one of the following:

[ ] The vehicle is not certified to meet the requirements of S19, S21, and S23 (Obtain answer from COTR) (S4.5.1(b)(1)) Go to 3.1 and skip 3.2 and 3.3

[ ] The vehicle is certified to meet the requirements of S19, S21, and S23 before 9/1/03. (Obtain answer from COTR) (S4.5.1(b)(2) Go to 3.2 and skip 3.1 and 3.3

[X] The vehicle is certified to meet the requirements of S19, S21, and S23 on 9/1/03 or later. (Obtain answer from COTR) (S4.5.1(b)(3)) Go to 3.3 and skip 3.1 and 3.2

[ ] 3.1 Vehicles not certified to meet the requirements of S19, S21, and S23.

[ ] 3.1.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing it? (S4.5.1(b)(1))

[ ] Driver Side, Yes – Pass
[ ] Driver Side, No – Fail
[ ] Passenger Side, Yes – Pass
[ ] Passenger Side, No – Fail

3.1.2 Does the label conform in content to the label shown in either Figure 6A or 6B (Figure 6b is for vehicles with passenger air bag on-off switches), as appropriate, at each front outboard seating position? (S4.5.1(b)(1)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(1)(iv))

Figure 6a. Sun Visor Label Visible When Visor is in Down Position.

Figure 6b. Sun Visor Label Visible When Visor is in Down Position.

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

3.1.3 Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(1)(i))

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

3.1.4 Is the message area white with black text? (S4.5.1(b)(1)(ii))

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

☐ 3.1.5 Is the message area at least 30 cm^2? (S4.5.1(b)(1)(ii))

Driver Side: Length ___, Width _____

Passenger Side: Length ___, Width _____

Actual message area ___ cm^2

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☐ 3.1.6 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(b)(2)(iii)

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☐ 3.1.7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))

Actual diameter __ mm

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☐ 3.2 Vehicles certified to meet the requirements of S19, S21, and S23 before 9/1/03.

☐ 3.2.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(2))

- ☐ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☐ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

3.2.2 Does the label conform in content to the label shown in either Figure 8 or 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: “The back seat is the safest place for children.” (S4.5.1(b)(2)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement “Never put a rear-facing child seat in the front.”(S4.5.1(b)(2)(v))

Figure 8. Sun Visor Label Visible when Visor is in Down Position.

Figure 11. Sun Visor Label Visible when Visor is in Down Position.

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

3.2.3 Is the label heading area yellow with the word “WARNING” and the alert symbol in black? (S4.5.1(b)(2)(i))

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

3.2.4 Is the message area white with black text? (S4.5.1(b)(2)(ii))

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

	3.2.5	Is the message area at least 30 cm^2? (S4.5.1(b)(2)(ii)) Driver Side: Length_____, Width_____ Passenger Side: Length_____, Width_____ Actual message area _____ cm^2
		Driver Side, Yes – Pass
		Driver Side, No – Fail
		Passenger Side, Yes – Pass
		Passenger Side, No – Fail
	3.2.6	Is the pictogram black on a white background? (S4.5.1(b)(2)(iii)
		Driver Side, Yes – Pass
		Driver Side, No – Fail
		Passenger Side, Yes – Pass
		Passenger Side, No – Fail
	3.2.7	Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(2)(iii)) Driver Side: Length_____ Passenger Side: Length_____
		Driver Side, Yes – Pass
		Driver Side, No – Fail
		Passenger Side, Yes – Pass
		Passenger Side, No – Fail
X	3.3	Vehicles certified to meet the requirements of S19, S21, and S23 on 9/1/03 and later. (S4.5.1(b)(3))
X	3.3.1	Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(3))
X		Driver Side, Yes – Pass
		Driver Side, No – Fail
X		Passenger Side, Yes – Pass
		Passenger Side, No – Fail

X	3.3.2	Does the label conform in content to the label shown in Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(3)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a rear-facing child seat in the front." (S4.5.1(b)(3)(v))

Figure 11. Sun Visor Label Visible when Visor is in Down Position.

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X	3.3.3	Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(3)(i))

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X	3.3.4	Is the message area white with black text? (S4.5.1(b)(3)(ii))

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X	3.3.5	Is the message area at least 30 cm^2? (S4.5.1(b)(3)(ii))

Driver Side: Length 9 cm , Width 4 cm
Passenger Side: Length 9 cm, Width 4 cm
Driver Actual message area 36 cm^2
Passenger Actual message area 36 cm^2

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X 3.3.6 Is the pictogram black on a white background? (S4.5.1(b)(3)(iii)

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.3.7 Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(3)(iii))

Driver Side: Length 37 mm
Passenger Side: Length 37 mm

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.4 Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1(b)(5)(i))

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.5 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label and/or the rollover-warning label? (S4.5.1(b)(5)(ii))

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.6 Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?

_X_ Yes, go to 3.6.1

___ No, go to 4 (skipping 3.6.1 through 3.6 3)

X 3.6.1 Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?

_X_ Yes, go to 3.6.2 and **skip 3.6.3**

___ No, go to 3.6.3 and skip 3.6.2

X 3.6.2 Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))

3.5 cm actual distance

	3.6.3	Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105 (d)(1)(iv)(A)) _____actual distance __Yes-Pass ___**No-FAIL**
X	4.	Air Bag Alert Label (S4.5.1(c) (A "Rollover Warning Label" or "Rollover Alert Label" may be on the same side of the driver's sun visor as the "Air Bag Alert Label." 575.105(d))
X	4.1	Is the sun visor warning label visible when the sun visor is in the stowed position?

	If yes for driver and passenger, go to 5.
	Driver Side, Yes
X	Driver Side, No
	Passenger Side, Yes
X	Passenger Side, No

X	4.2	Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c))

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X	4.3	Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X	4.4	Does the label conform in content to the label shown in Figure 6C? (S4.5.1(c))

Figure 6c. Sun Visor Label Visible When Visor is in Up Position.

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X	4.5	Is the message area black with yellow text? (S4.5.1(c)(1)

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X	4.6	Is the message area at least 20 cm^2? (S4.5.1(c)(1))

Driver Side: Length _7 cm_, Width _5 cm_
Passenger Side: Length_6 cm_, Width _4 cm_
Actual message area _35 & 24_ cm^2

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X	4.7	Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2))

X	Driver Side, Yes – Pass
	Driver Side, No – Fail
X	Passenger Side, Yes – Pass
	Passenger Side, No – Fail

X 4.8 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2))

Driver Side Diameter 43 mm

Passenger Side Diameter 30 mm

X Driver Side, Yes – Pass

Driver Side, No – Fail

X Passenger Side, Yes – Pass

Passenger Side, No – Fail

X 5. Label on the Dashboard

X 5.1 Is the vehicle certified to meet the requirements of S19, S21, and S23? (Obtain answer from COTR) (S4.5.1(3)(2))

X Yes, go to 5.1.1 and **skip 5.2**

No, go to 5.2, skipping 5.1.1 through 5.1.6

X 5.1.1 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(2))

X Yes – Pass

No – Fail

X 5.1.2 Is the label clearly visible from all front seating positions? (S4.5.1(e)(2))

X Yes – Pass

No - Fail

X 5.1.3 Does the label conform in content to the label shown in Figure 9? (S4.5.1(e)(2)) Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(e)(2)(iii))

X Yes – Pass

No - Fail

Figure 9. Removable Label on Dash.

X 5.1.4 Is the heading area yellow with black text? (S4.5.1(e)(2)(i)

X Yes – Pass

No – Fail

X 5.1.5 Is the message white with black text? (S4.5.1(e)(2)(ii))

X Yes – Pass

No – Fail

X 5.1.6 Is the message area at least 30 cm^2? (S4.5.1(e)(2)(ii))

Length 11.5 cm , Width 3.5 cm

Actual message area 40.25 cm^2

X Yes – Pass

No – Fail

5.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(1))

Yes – Pass

No – Fail

5.2.1 Is the label clearly visible from all front seating positions? (S4.5.1(e)(1))

Yes – Pass

No – Fail

5.2.2 Does the label conform in content to the label shown in Figure 7? (S4.5.1(e)(1)(iii)) Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(e)(2)(iii))

Yes – Pass

No – Fail

Figure 7. Removable Label on Dash.

5.2.3 Is the heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(e)(1)(i)

Yes – Pass

No – Fail

5.2.4 Is the message white with black text? (S4.5.1(e)(1)(ii))

Yes – Pass

No – Fail

☐ 5.2.5 Is the message area at least 30 cm^2? (S4.5.1(e)(1)(ii))

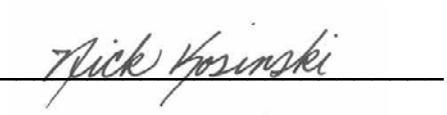
Length ___, Width ____

Actual message area ___ cm^2

☐ Yes – Pass

☐ No – Fail

I certify that I have read and performed each instruction.

Signature: 

Date: 4/20/05

DATA SHEET 6

FMVSS 208 READINESS INDICATOR (S4.5.2)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement. (11/8/94 legal interpretation to Lawrence F. Hennegerger on behalf of Breed)

[X] 1. Is the system totally mechanical? If Yes, this data sheet is complete.
- [ ] Yes
- [X] No

[X] 2. Describe the location of the readiness indicator: On instrument cluster

[X] 3. Is the readiness indicator clearly visible to the driver?
- [X] Yes – Pass
- [ ] No – Fail

[X] 4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner's manual?
- [X] Yes – Pass
- [ ] No – Fail

[X] 5. Does the vehicle have an on-off switch for the passenger air bag?
- [ ] If Yes, go to 6
- [X] If No, this form is complete.

[ ] 6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?
- [ ] Yes – Pass
- [ ] No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 7

PASSENGER AIR BAG MANUAL CUT-OFF DEVICE (S4.5.4)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/20/05

[X] 1. Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position?

- [ ] Yes, go to 2
- [X] No, this sheet is complete

[ ] 2. Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4(a))

- [ ] Yes, go to 3
- [ ] No, go to 4

[ ] 3. Verification of the lack of room for a child restraint in the rear seat behind the driver's seat. (S4.5.4(b))

[ ] 3.1 Position the seat's adjustable lumbar supports to that the lumbar support is in its lowest, retracted or deflated adjustment position (S8.1.3)

- [ ] N/A, no lumbar adjustment

[ ] 3.2 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.02)

- [ ] N/A, no additional support adjustment

[ ] 3.3 If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)

- [ ] N/A, no independent fore-aft seat cushion adjustment

[ ] 3.4 If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position (S16.2.10.3.1)

- [ ] N/A, no independent seat cushion height adjustment

[ ] 3.5 Put the seat in its full rearward position. (S16.2.10.3.1)

- [ ] N/A, the seat does not have a fore-aft adjustment

[ ] 3.6 If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)

- [ ] N/A, no seat height adjustment

[ ] 3.7 Draw a horizontal reference line on the side of the seat cushion.

[ ] 3.8 Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

- [ ] N/A – the seat does not have a fore-aft adjustment.

[ ] 3.9 Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position. (S8.1.2)

- [ ] N/A – the seat does not have fore-aft adjustment.
- [ ] Mid position

If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

3.10 If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.

N/A – No adjustments

Angle of reference line as tested:

3.11 The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

N/A – No seat back angle adjustment

Manufacturers design seat back angle:

Tested seat back angle:

3.12 Is the driver seat a bucket seat?

Yes, go to 3.12.1 and skip 3.12.2

No, go to 3.12.2 and skip 3.12.1

3.12.1 Bucket Seats:

3.12.1.1 Locate and mark a vertical Plane B through the longitudinal centerline of the seat driver's seat cushion. (S22.2.1.3) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.

Record the width of the seat:

Record the distance from the edge of the seat to Plane B:

3.12.1.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver's seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver's seat.

Distance (mm):

Less than 720 mm – Pass

More then 720 mm – Fail

Go to 4

3.12.2 Bench seats (including split bench seats):

3.12.2.1 Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.

3.12.2.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat.

Distance (mm):

Less than 720 mm – Pass

More then 720 mm – Fail

Go to 4

4. Does the device turn the air bag on and off using the vehicle's ignition key? (S4.5.4.2)

Yes – Pass

No – Fail

5. Is the on-off device separate from the ignition switch? (S4.5.4.2)

- Yes – Pass
- No – Fail

6. Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2)

- Yes – Pass
- No – Fail

7. Telltale light (S4.5.4.3)

7.1 Is the light yellow? S4.5.4.3(a))

- Yes – Pass
- No – Fail

7.2 Are the words “PASSENGER AIR BAG OFF” (S4.5.4.3(b))

7.2.1 on the telltale?

- Yes – Pass, go to 7.3
- No – go to 7.2.2

7.2.2 within 25 mm of the telltale?

Measurement from the edge of the telltale light (mm):

- Yes – Pass
- No – Fail

7.3 Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3c)) (Leave the air bag off for 5 minutes.)

- Yes – Pass
- No – Fail

7.4 Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))

- Yes – Fail
- No – Pass

7.5 Is the telltale combined with the air bag readiness indicator? (S4.5.4.3(e))

- Yes – Fail
- No – Pass

8. Owner’s Manual

8.1 Does the owner’s manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))

- Yes – Pass
- No – Fail

8.2 Does the owner's manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b))

Infants: there is no back seat
the rear seat is too small to accommodate a child restraint
there is a medical condition that must be monitored constantly

Children aged 1 to 12: there is no back seat
space is not always available in the rear seat
there is a medical condition that must be monitored constantly

Medical condition: medical risk causes special risk for passenger
greater risk for harm than with the air bag on

Yes – Pass

No – Fail

8.3 Does the owner's manual contain a warning about the safety consequences of using the on-off switch at other times?

Yes – Pass

No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski
NHTSA No.: C50510
Test Date: 4/20/05

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Front Passenger

		N/A – no retractor is at this position
		N/A – the retractor is an automatic locking retractor ONLY
X	1.	Record test fore-aft seat position: Full Aft (S7.1.1.5(c)(1)) (Any position is acceptable)
X	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	4.	Buckle the seat belt. (S7.1.1.5(c)(1))
X	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
X	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
X	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		X Yes, go to 7.1
		No, go to 8
X	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		X Yes – Pass
		No – Fail
X	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 73 inches

X 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

X 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle (Spec. 5-15 degrees): 10 degrees

X 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B (inches): 30 inches

X 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

X Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 25 lb/sec

X Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 31.5 inches

X 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

X 13 - 12 = 31.5 inches - 30 inches - 1.5 inches

X Yes – Pass

☐ No – Fail

X 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

X 9 - 13 = 73 inches - 31.5 inches = 41.5 inches

X Yes – Pass

☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

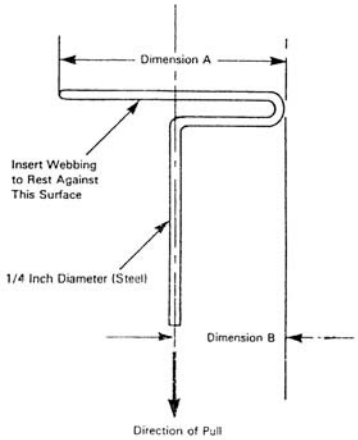


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Left Rear Passenger

		N/A – no retractor is at this position
		N/A – the retractor is an automatic locking retractor ONLY
X	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)
X	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	4.	Buckle the seat belt. (S7.1.1.5(c)(1))
X	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
X	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
X	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		X Yes, go to 7.1
		No, go to 8
X	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		X Yes – Pass
		No – Fail
X	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 68 inches

X 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

X 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle (Spec. 5-15 degrees): 10 degrees

X 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B (inches): 21.75 inches

X 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

X Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 25 lb/sec

X Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 22. 5 inches

X 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

X 13 - 12 = 22. 5 inches - 21.75 inches = 0.75 inches

X Yes – Pass

☐ No – Fail

X 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

X 9 - 13 = 68 inches - 22.5 inches = 45.5 inches

X Yes – Pass

☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Rick Kosinski

Date: 4/20/05

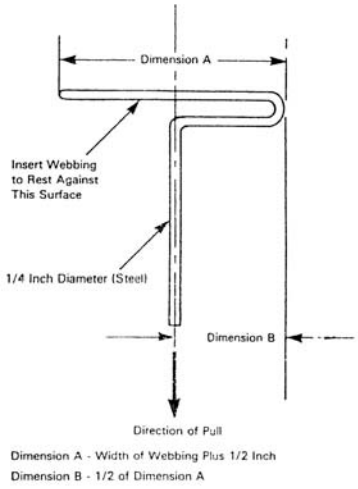


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski
NHTSA No.: C50510
Test Date: 4/20/05

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Center Rear Passenger

		N/A – no retractor is at this position
		N/A – the retractor is an automatic locking retractor ONLY
X	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)
X	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	4.	Buckle the seat belt. (S7.1.1.5(c)(1))
X	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
X	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
X	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		X Yes, go to 7.1
		No, go to 8
X	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		X Yes – Pass
		No – Fail
X	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 60 inches

X 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

X 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle (Spec. 5-15 degrees): 10 degrees

X 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B (inches): 24 inches

X 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

X Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 25 lb/sec

X Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 24.5 inches

X 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

X 13 - 12 = 24.5 inches - 24 inches = 0.5 inches

X Yes – Pass

No – Fail

X 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

X 9 - 13 = 60 inches – 24.5 inches = 35.5 inches

X Yes – Pass

No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

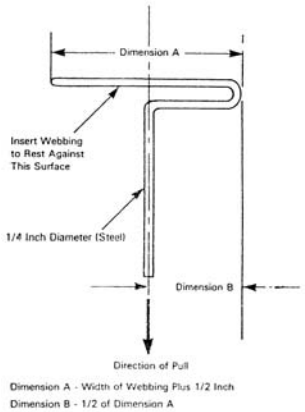


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Right Rear Passenger

		N/A – no retractor is at this position
		N/A – the retractor is an automatic locking retractor ONLY
X	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)
X	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	4.	Buckle the seat belt. (S7.1.1.5(c)(1))
X	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
X	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
X	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		X Yes, go to 7.1
		No, go to 8
X	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		X Yes – Pass
		No – Fail
X	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 67.5 inches

X 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

X 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle (Spec. 5-15 degrees): 10 degrees

X 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B (inches): 23.5 inches

X 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

X Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 25 lb/sec

X Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 24.25 inches

X 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

X 13 - 12 = 24.25 inches - 23.5 inches = 0.75 inch

X Yes – Pass

☐ No – Fail

X 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

X 9 - 13 = 67.5 inches - 24.25 inches = 43.25 inches

X Yes – Pass

☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

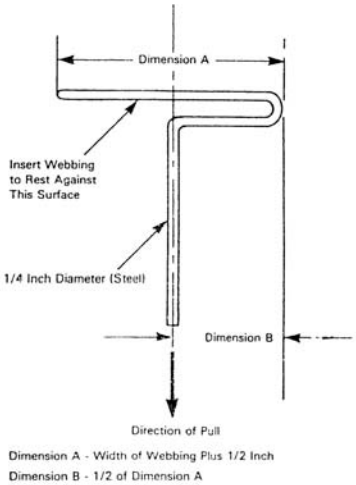


Figure 5. - Webbing Tension Pull Device

DATA SHEET 9

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

X	1.	The occupant is in the driver's seat.
X	2.	The seat belt is in the stowed position.
X	3.	The key is in the "on" or "start" position.
X	4.	The time duration of the audible signal beginning with key "on" or "start" is
X		Seconds: 8.0
X	5.	The occupant is in the driver's seat.
X	6.	The seat belt is in the stowed position.
X	7.	The key is in the "on" or "start" position.
X	8.	The time duration of the warning light beginning with key "on" or "start" is
X		Seconds: Stays On
X	9.	The occupant is in the driver's seat.
X	10.	The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
X	11.	The key is in the "on" or "start" position.
X	12.	The time duration of the audible signal beginning with key "on" or "start" is
X		Seconds: 0.0
X	13.	The occupant is in the driver's seat.
X	14.	The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
X	15.	The key is in the "on" or "start" position.
X	16.	The time duration of the warning light beginning with key "on" or "start" is
X		Seconds: 0.0
X	17.	Complete the following table with the data from 4, 8, 12, and 16 to determine which option is used.

		Warning light	Warning light specification	Audible signal	Audible signal specification*
S7.3 (a)(1)	Belt latched & key on or start	Item 16: 0.0		Item 12: 0.0	0 seconds**
	Belt stowed & key on or start	Item 8: Stays On	60 seconds minimum	Item 4: 8.0	4 to 8 seconds
S7.3 (a)(2)	Belt latched & key on or start	Item 16: 0.0	4 to 8 seconds	Item 12: 0.0	0 seconds**
	Belt stowed & key on or start	Item 8: Stays On	4 to 8 seconds	Item 4: 8.0	4 to 8 seconds

* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.
** 0 seconds means the light or audible signal are NOT permitted to operate under these conditions.
See 7/12/00 interpretation to Patrick Raher of Hogan and Hartson

[X] 18. The seat belt warning system meets the requirements of (manufacturers may comply with either section)

- [X] S7.3 (a)(1)
- [ ] S7.3 (a)(2)
- [ ] FAIL – does not meet the requirements of either option

[X] 19. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))

- [ ] Fasten seat belts
- [ ] Fasten belts
- [X] Symbol 101
- [ ] FAIL – does not used any of the above working or symbol

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Yurinski

Date: 4/20/05

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/15/05
Test Technician: Nick Kosinski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Front Driver

X 1. Does the vehicle incorporate a webbing tension-relieving device?

- [ ] Yes, this form is complete
- [X] No, continue with this check sheet

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)

- [X] N/A, no lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)

- [X] N/A, no additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)

- [X] N/A, no independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)

- [ ] N/A, no independent seat cushion height adjustment

X 6. Put the seat in its full rearward position. (S16.2.10.3.1)

- [ ] N/A, the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, set this adjustment to the full down position. (S16.2.10.3.1)

- [ ] N/A, no seat height adjustment

X 8. Draw a horizontal reference line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

- [ ] N/A, the seat does not have a fore-aft adjustment

[X] 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)

[X] Mid position

If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

[X] 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)

[ ] N/A, no adjustments

Reference line angle as tested: Zero degrees

[X] 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

[ ] N/A, no seat back angle adjustment

[X] Manufacturer's design seat back angle: 25.9 degrees on seat back

[X] Tested seat back angle: 26 degrees on seat back

[X] 13. Position the test dummies according to dummy position placement instructions in Appendix F.

[X] 14. Fasten the seat belt latch.

[X] 15. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

[X] 16. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

[X] Contact Force (lb): 0.51

[X] 0.0 to 0.7 pounds – Pass

[ ] Greater than 0.7 pounds – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Front Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?
- [ ] Yes, this form is complete
- [X] No, continue with this check sheet

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
- [X] N/A, no lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
- [X] N/A, no additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
- [X] N/A, no independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
- [X] N/A, no independent seat cushion height adjustment

X 6. Put the seat in its full rearward position. (S16.2.10.3.1)
- [ ] N/A, the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, set this adjustment to the full down position. (S16.2.10.3.1)
- [ ] N/A, no seat height adjustment

X 8. Draw a horizontal reference line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
- [ ] N/A, the seat does not have a fore-aft adjustment

[X] 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)

[X] Mid position

If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

[X] 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)

[ ] N/A, no adjustments

Reference line angle as tested: Zero degrees

[X] 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

[ ] N/A, no seat back angle adjustment

[X] Manufacturer's design seat back angle: 25.9 degrees on seat back

[X] Tested seat back angle: 25.9 degrees on seat back

[X] 13. Position the test dummies according to dummy position placement instructions in Appendix F.

[X] 14. Fasten the seat belt latch.

[X] 15. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

[X] 16. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

[X] Contact Force (lb): 0.50

[X] 0.0 to 0.7 pounds – Pass

[ ] Greater than 0.7 pounds – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?

- [ ] Yes, this form is complete
- [X] No, continue with this check sheet

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)

- [X] N/A, no lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)

- [X] N/A, no additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)

- [X] N/A, no independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)

- [X] N/A, no independent seat cushion height adjustment

X 6. Put the seat in its full rearward position. (S16.2.10.3.1)

- [X] N/A, the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, set this adjustment to the full down position. (S16.2.10.3.1)

- [X] N/A, no seat height adjustment

X 8. Draw a horizontal reference line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

- [X] N/A, the seat does not have a fore-aft adjustment

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)

☐ Mid position

If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

X 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)

X N/A, no adjustments

Reference line angle as tested: Zero degrees

X 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

X N/A, no seat back angle adjustment

X Manufacturer's design seat back angle: Not adjustable

X Tested seat back angle: Not adjustable

X 13. Position the test dummies according to dummy position placement instructions in Appendix F.

X 14. Fasten the seat belt latch.

X 15. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 16. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): 0.56

X 0.0 to 0.7 pounds – Pass

☐ Greater than 0.7 pounds – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Center Rear Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?

[ ] Yes, this form is complete

[X] No, continue with this check sheet

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)

[X] N/A, no lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)

[X] N/A, no additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)

[X] N/A, no independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)

[X] N/A, no independent seat cushion height adjustment

X 6. Put the seat in its full rearward position. (S16.2.10.3.1)

[ ] N/A, the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, set this adjustment to the full down position. (S16.2.10.3.1)

[X] N/A, no seat height adjustment

X 8. Draw a horizontal reference line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

[X] N/A, the seat does not have a fore-aft adjustment

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)

☐ Mid position

If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

X 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)

X N/A, no adjustments

Reference line angle as tested: Zero degrees

X 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

X N/A, no seat back angle adjustment

X Manufacturer's design seat back angle: Not adjustable

X Tested seat back angle: Not adjustable

X 13. Position the test dummies according to dummy position placement instructions in Appendix F.

X 14. Fasten the seat belt latch.

X 15. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 16. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): 0.49

X 0.0 to 0.7 pounds – Pass

☐ Greater than 0.7 pounds – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?

- [ ] Yes, this form is complete
- [X] No, continue with this check sheet

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)

- [X] N/A, no lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)

- [X] N/A, no additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)

- [X] N/A, no independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)

- [X] N/A, no independent seat cushion height adjustment

X 6. Put the seat in its full rearward position. (S16.2.10.3.1)

- [X] N/A, the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, set this adjustment to the full down position. (S16.2.10.3.1)

- [X] N/A, no seat height adjustment

X 8. Draw a horizontal reference line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

- [X] N/A, the seat does not have a fore-aft adjustment

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)

☐ Mid position

If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

X 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)

X N/A, no adjustments

Reference line angle as tested: Zero degrees

X 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

X N/A, no seat back angle adjustment

X Manufacturer's design seat back angle: Not adjustable

X Tested seat back angle: Not adjustable

X 13. Position the test dummies according to dummy position placement instructions in Appendix F.

X 14. Fasten the seat belt latch.

X 15. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 16. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): 0.53

X 0.0 to 0.7 pounds – Pass

☐ Greater than 0.7 pounds – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 11

LATCH PLATE ACCESS (S7.4.4)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test all front outboard seat belts **other than those in** walk-in van-type vehicles and those at front outboard designated seating positions in **passenger cars**. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Front Driver

X 1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (8.1.3)

X N/A, no lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)

X N/A, no additional support adjustment

X 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)

X N/A, no independent fore-aft seat cushion adjustment

X 4. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)

X N/A, no independent seat cushion height adjustment

X 5. Put the seat in its full rearward position. (S16.2.10.3.1)

N/A, the seat does not have a fore-aft adjustment

X 6. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)

N/A, no seat height adjustment

X 7. Draw a horizontal reference line on the side of the seat cushion

X 8. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

N/A, the seat does not have a fore-aft adjustment.

X 9. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the forward most fore-aft position for this test. (S10.7)

X 10. If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.

N/A, no adjustments

X Reference line angle as tested: Zero degrees

X 11. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

[ ] N/A, no seat back angle adjustment

X Manufacturer's design seat back angle: 25.9 degrees on seat back

X Tested seat back angle: 26.2 degrees on seat back

X 12. Position the test dummy using the procedures in Appendix A. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix A positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) Include the positioning check sheet with this form.

X 13. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.

X 14. Attach the inboard reach string to the base of the head following the instructions on Figure 3.

X 15. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.

X 16. Place the latch plate in the stowed position.

X 17. Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

[X] Yes – Pass

[ ] No

X 18. Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

[X] Yes – Pass

[ ] No

X 19. Is the latch plate within the inboard (item 17) or outboard (item 18) reach envelope?

[X] Yes – Pass

[ ] No – Fail

X 20. Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?

[X] Yes – Pass

[ ] No – Fail

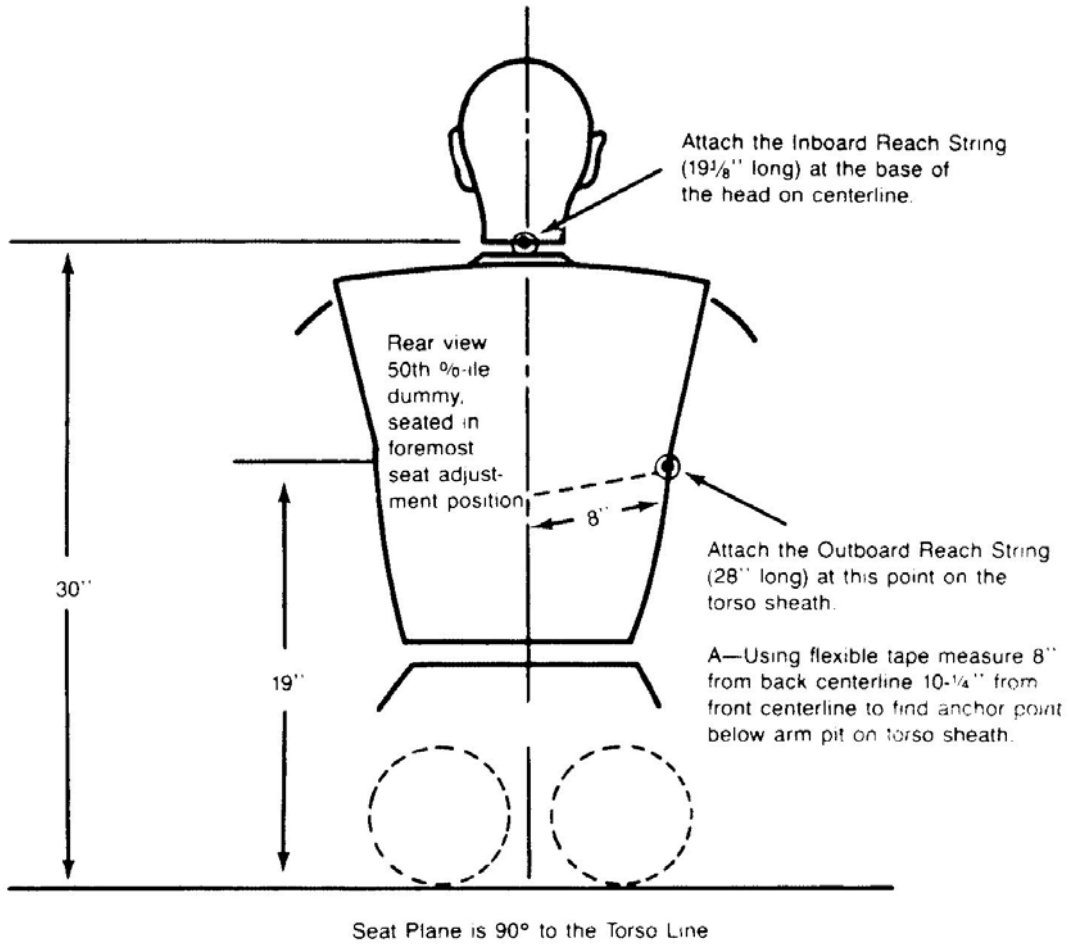


Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart E Test Device

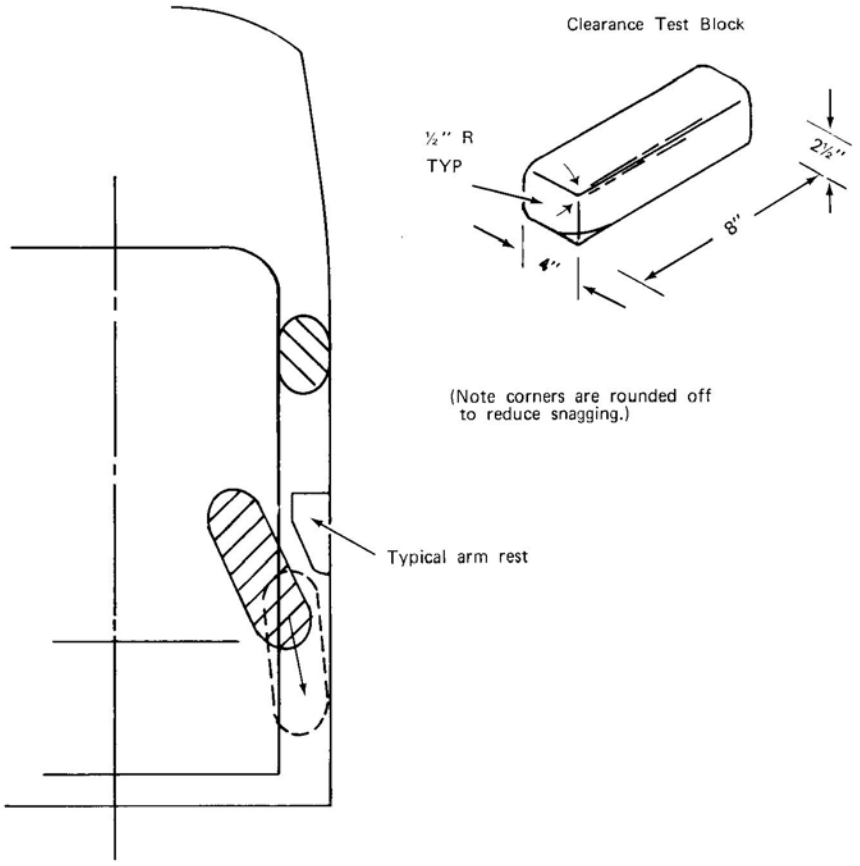


Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

REMARKS:

I certify that I have read and performed each instruction.

Signature: Rick Kosinski

Date: 4/20/05

DATA SHEET 11

LATCH PLATE ACCESS (S7.4.4)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test all front outboard seat belts **other than those in** walk-in van-type vehicles and those at front outboard designated seating positions in **passenger cars**. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Front Passenger

X 1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (8.1.3)

X N/A, no lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)

X N/A, no additional support adjustment

X 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)

X N/A, no independent fore-aft seat cushion adjustment

X 4. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)

X N/A, no independent seat cushion height adjustment

X 5. Put the seat in its full rearward position. (S16.2.10.3.1)

N/A, the seat does not have a fore-aft adjustment

X 6. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)

X N/A, no seat height adjustment

X 7. Draw a horizontal reference line on the side of the seat cushion

X 8. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

N/A, the seat does not have a fore-aft adjustment.

X 9. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the forward most fore-aft position for this test. (S10.7)

X 10. If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.

N/A, no adjustments

X Reference line angle as tested: Zero degrees

X 11. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

[ ] N/A, no seat back angle adjustment

X Manufacturer's design seat back angle: 25.9 degrees on seat back

X Tested seat back angle: 26 degrees on seat back

X 12. Position the test dummy using the procedures in Appendix A. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix A positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) Include the positioning check sheet with this form.

X 13. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.

X 14. Attach the inboard reach string to the base of the head following the instructions on Figure 3.

X 15. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.

X 16. Place the latch plate in the stowed position.

X 17. Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

[X] Yes – Pass

[ ] No

X 18. Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

[X] Yes – Pass

[ ] No

X 19. Is the latch plate within the inboard (item 17) or outboard (item 18) reach envelope?

[X] Yes – Pass

[ ] No – Fail

X 20. Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?

[X] Yes – Pass

[ ] No – Fail

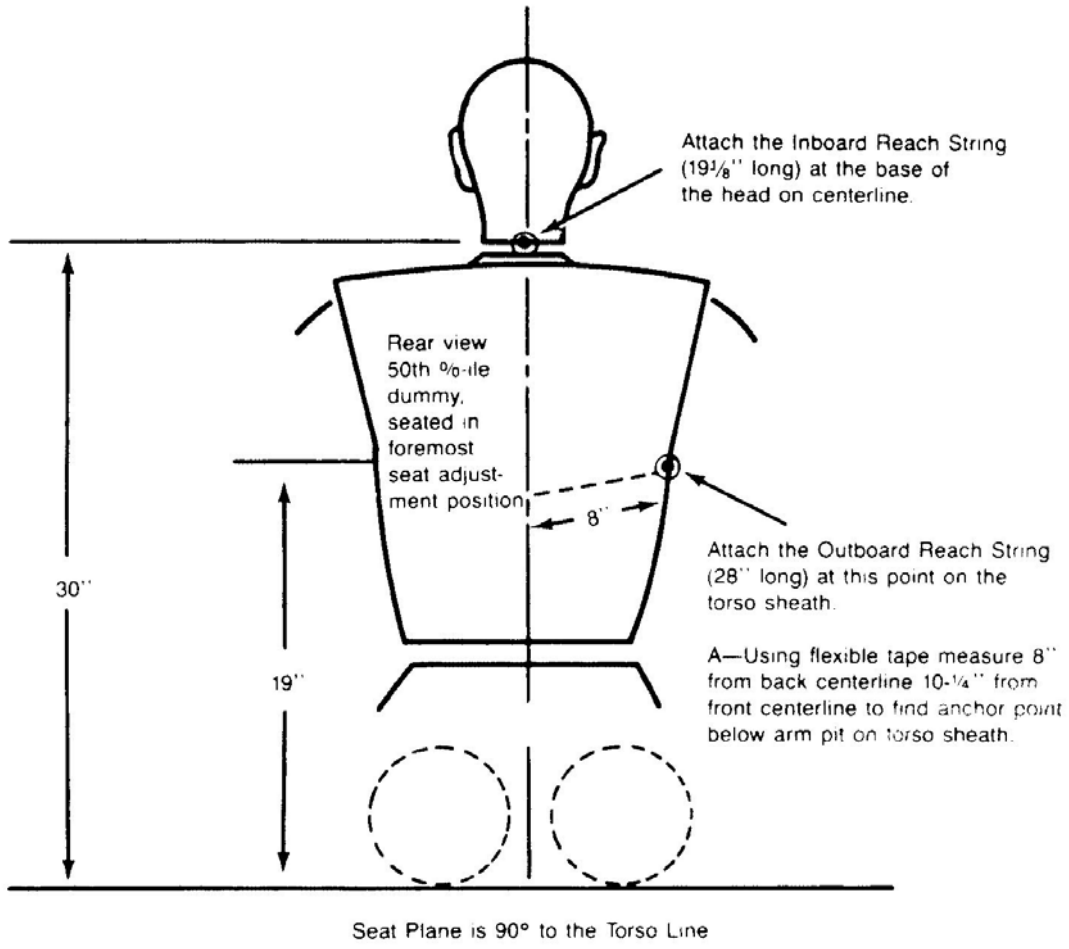


Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart E Test Device

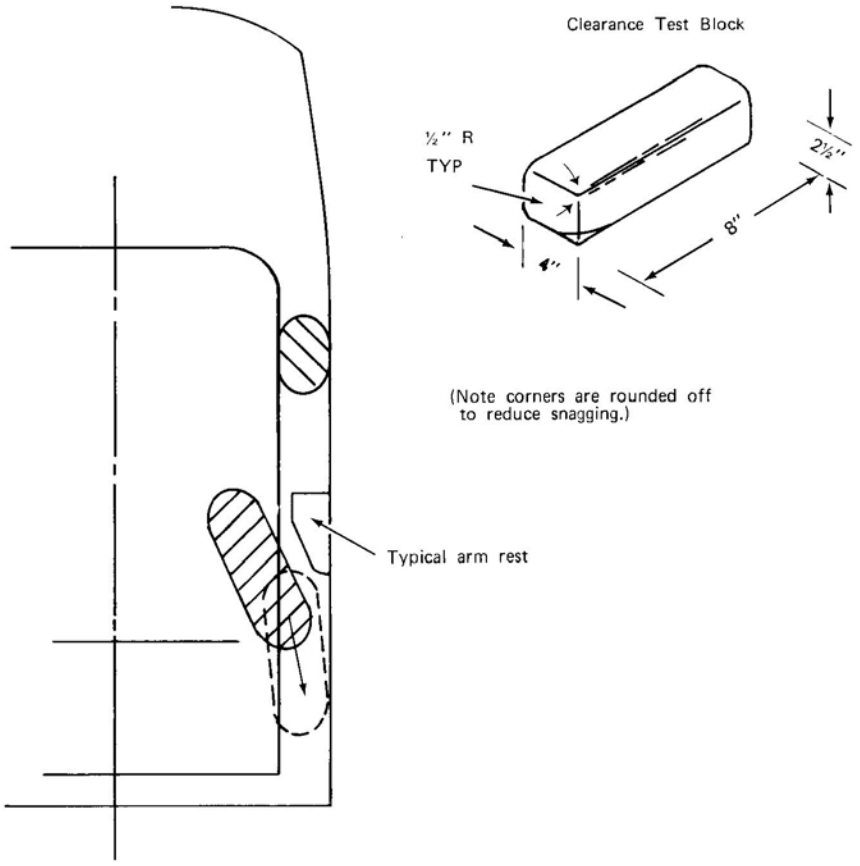


Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

REMARKS:

I certify that I have read and performed each instruction.

Signature: Rick Kosinski

Date: 4/20/05

DATA SHEET 12

SEAT BELT RETRACTION (S7.4.5)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Front Driver
GVWR:	2307 kg

X 1. Is the vehicle a passenger car or walk-in van-type vehicle?

- [ ] Yes, this form is complete
- [X] No

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)

- [X] N/A, no lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)

- [X] N/A, no additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position.) (S16.2.10.3.1)

- [X] N/A, no independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)

- [ ] N/A, no independent seat cushion height adjustment

X 6. Put the seat in its full rearward position.

- [ ] N/A, the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, put it in the full down position. (S8.1.2)

- [ ] N/A, no seat adjustment

X 8. Draw a horizontal line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

- [ ] N/A, the seat does not have a fore-aft adjustment.

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the middle fore-aft position. (S8.1.2)

X If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

X 11. If seat adjustments, other than fore-aft, are present and the reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2)

☐ N/A – no seat adjustment

X Reference angle as tested: Zero degrees

X 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S8.1.3)

☐ N/A – no seat back angle adjustment

X Manufacturer's design seat back angle: 25.9 degrees on seat back

X Tested seat back angle: 26.2 degrees on seat back

X 13. If adjustable, set the head restraint at the full up and full forward position. (S8.1.3) Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible.

X N/A – no head restraint adjustment

X 14. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)

☐ N/A – no adjustable upper seat belt anchorage

X Manufacturer's specified anchorage position: 2nd from top

X Tested anchorage position: 2nd from top

X 15. Is the driver seat a bucket seat?

X Yes, go to 15.1 and skip 15.2.

☐ No, go to 15.2 and skip 15.1

X 15.1 Bucket seats - Locate and mark a vertical Plane B through the longitudinal centerline of the seat. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.

X Record the width of the seat: 520 mm

X Record the distance from the edge of the seat to Plane B. 260 mm

☐ 15.2 Bench seats (including split bench seats):

☐ Driver seat: Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.

☐ Passenger seat: Locate and mark a vertical longitudinal Plane B on the seat that is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.

☐ Distance from the vehicle centerline to the center of the steering wheel:

☐ Distance from the vehicle centerline to Plane B:

X 16. Stow outboard armrests that are capable of being stowed. (S7.4.5)

X 17. Remove the arms of a Subpart E dummy and place it in the seat such that the midsagittal plane is coincident with Plane B and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

X 18. Rest the thighs on the seat cushion

X	19.	Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)
		0.40 inches — Horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
		0.40 inches — Vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
		20 degrees — Pelvic angle (20° to 25°)
X	20.	Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.
X		Measured distance (10.6 inches) (S10.5): 10.6 inches
X	21.	To the extent practicable keep the thighs and the legs in a vertical plane (S10.5) and rest the thighs on the seat cushion while resting the feet on the floorpan or toe board.
X	22.	Fasten the seat belt around the dummy.
X	23.	Remove all slack from the lap belt portion. (S10.9)
X	24.	Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)
X	25.	Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
X		Pound load applied: 4 pounds
X	26.	Is the belt system equipped with a tension relieving device?
		☐ Yes, continue
		X No, go to 27
	26.1	Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9). Go to 25.
X	27.	Check the statement that applies to this test vehicle:
	27.1	The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.
		X Pass
	27.2	The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.
		X Pass
	27.3	Neither 27.1 or 27.2 apply
		☐ Fail
X	28.	With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?
		X Yes – Pass
		☐ No – Fail

[X] 29. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

- [X] N/A
- [ ] Yes – Pass
- [ ] No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 12

SEAT BELT RETRACTION (S7.4.5)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Front Passenger
GVWR:	2307 kg

X 1. Is the vehicle a passenger car or walk-in van-type vehicle?
- [ ] Yes, this form is complete
- [X] No

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
- [X] N/A, no lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
- [X] N/A, no additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position.) (S16.2.10.3.1)
- [X] N/A, no independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
- [X] N/A, no independent seat cushion height adjustment

X 6. Put the seat in its full rearward position.
- [ ] N/A, the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, put it in the full down position. (S8.1.2)
- [X] N/A, no seat adjustment

X 8. Draw a horizontal line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.
- [ ] N/A, the seat does not have a fore-aft adjustment.

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the middle fore-aft position. (S8.1.2)

X If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

X	11.	If seat adjustments, other than fore-aft, are present and the reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2)
		☐ N/A – no seat adjustment
X		Reference angle as tested: Zero degrees
X	12.	The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S8.1.3)
		☐ N/A – no seat back angle adjustment
X		Manufacturer's design seat back angle: 25.9 degrees on seat back
X		Tested seat back angle: 26 degrees on seat back
X	13.	If adjustable, set the head restraint at the full up and full forward position. (S8.1.3) Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible.
		X N/A – no head restraint adjustment
X	14.	Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)
		☐ N/A – no adjustable upper seat belt anchorage
X		Manufacturer's specified anchorage position: 2nd from top
X		Tested anchorage position: 2nd from top
X	15.	Is the driver seat a bucket seat?
		X Yes, go to 15.1 and skip 15.2.
		☐ No, go to 15.2 and skip 15.1
X	15.1	Bucket seats - Locate and mark a vertical Plane B through the longitudinal centerline of the seat. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
X		Record the width of the seat: 520 mm
X		Record the distance from the edge of the seat to Plane B. 260 mm
	15.2	Bench seats (including split bench seats):
		☐ Driver seat: Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.
		☐ Passenger seat: Locate and mark a vertical longitudinal Plane B on the seat that is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.
		Distance from the vehicle centerline to the center of the steering wheel:
		Distance from the vehicle centerline to Plane B:
X	16.	Stow outboard armrests that are capable of being stowed. (S7.4.5)
X	17.	Remove the arms of a Subpart E dummy and place it in the seat such that the midsagittal plane is coincident with Plane B and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)
X	18.	Rest the thighs on the seat cushion

X	19.	Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)

0.40 inches	Horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
0.40 inches	Vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
21 degrees	Pelvic angle (20^{o} to 25^{o})

X	20.	Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.
X		Measured distance (10.6 inches) (S10.5): 10.6 inches
X	21.	To the extent practicable keep the thighs and the legs in a vertical plane (S10.5) and rest the thighs on the seat cushion while resting the feet on the floorpan or toe board.
X	22.	Fasten the seat belt around the dummy.
X	23.	Remove all slack from the lap belt portion. (S10.9)
X	24.	Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)
X	25.	Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
X		Pound load applied: 4 pounds
X	26.	Is the belt system equipped with a tension relieving device?

	__Yes, continue
X	__No, go to 27

	26.1	Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9). Go to 25.
X	27.	Check the statement that applies to this test vehicle:
X	27.1	The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.

X	Pass

27.2	The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.

X	Pass
27.3	Neither 27.1 or 27.2 apply
	Fail

X	28.	With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?

X	Yes – Pass
	No – Fail

[X] 29. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

- [X] N/A
- [ ] Yes – Pass
- [ ] No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Rick Kosinski

Date: 4/20/05

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/20/05

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Front Driver

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))

- [ ] Yes, this form is complete
- [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))

- [ ] Yes, go to 5
- [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))

- [ ] Yes – Pass
- [ ] No – Fail

Identify the part(s) on top or above the seat.

- [ ] Seat belt latch plate
- [ ] Buckle
- [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?

- [ ] Yes – Pass
- [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)

- [ ] Yes – Pass
- [ ] No – Fail

8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)

- Yes – Pass
- No – Fail

9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

- Yes – Pass
- No – Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

- Yes – Pass
- No – Fail
- N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Yosinski

Date: 4/20/05

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/20/05

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Front Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))

- [ ] Yes, this form is complete
- [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))

- [ ] Yes, go to 5
- [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))

- [ ] Yes – Pass
- [ ] No – Fail

Identify the part(s) on top or above the seat.

- [ ] Seat belt latch plate
- [ ] Buckle
- [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?

- [ ] Yes – Pass
- [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)

- [ ] Yes – Pass
- [ ] No – Fail

8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)

- Yes – Pass
- No – Fail

9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

- Yes – Pass
- No – Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

- Yes – Pass
- No – Fail
- N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Yosinski

Date: 4/20/05

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/20/05

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))

- [ ] Yes, this form is complete
- [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))

- [ ] Yes, go to 5
- [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))

- [ ] Yes – Pass
- [ ] No – Fail

Identify the part(s) on top or above the seat.

- [ ] Seat belt latch plate
- [ ] Buckle
- [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?

- [ ] Yes – Pass
- [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)

- [ ] Yes – Pass
- [ ] No – Fail

☐ 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)

- ☐ Yes – Pass
- ☐ No – Fail

☐ 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

- ☐ Yes – Pass
- ☐ No – Fail

☐ 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

- ☐ Yes – Pass
- ☐ No – Fail
- ☐ N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Yosinski

Date: 4/20/05

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/20/05
Test Technician: Nick Kosinski

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Center Rear Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))

- [ ] Yes, this form is complete
- [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))

- [X] Yes, go to 5
- [ ] No, this form is complete

[X] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))

- [X] Yes – Pass
- [ ] No – Fail

Identify the part(s) on top or above the seat.

- [X] Seat belt latch plate
- [X] Buckle
- [X] Seat belt webbing

[X] 6. Are the remaining two seat belt parts accessible under normal conditions?

- [X] Yes – Pass
- [ ] No – Fail

[X] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)

- [X] Yes – Pass
- [ ] No – Fail

[X] 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)

- [X] Yes – Pass
- [ ] No – Fail

[X] 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

- [X] Yes – Pass
- [ ] No – Fail

[X] 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

- [ ] Yes – Pass
- [ ] No – Fail
- [X] N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/20/05

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))

- [ ] Yes, this form is complete
- [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))

- [ ] Yes, go to 5
- [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))

- [ ] Yes – Pass
- [ ] No – Fail

Identify the part(s) on top or above the seat.

- [ ] Seat belt latch plate
- [ ] Buckle
- [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?

- [ ] Yes – Pass
- [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)

- [ ] Yes – Pass
- [ ] No – Fail

8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)

- Yes – Pass
- No – Fail

9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

- Yes – Pass
- No – Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

- Yes – Pass
- No – Fail
- N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/20/05

DATA SHEET 14

MARKING OF REFERENCE POINTS FOR VARIOUS TEST POSITIONS AND POINTS

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C50510
Test Date: 4/19/06

1. Driver Designated Seating Position:

[X] 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1)

[X] N/A – No lumbar adjustment

[X] 1.2 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position (S16.2.10.2)

[X] N/A – No additional support adjustment

[X] 1.3 Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion.

[X] 1.4 Draw a line (seat cushion reference line) through the seat cushion reference point.

[X] 1.5 Using only the controls that primarily move the seat in the fore-aft direction, move the seat cushion reference point to the rearmost position.

[X] 1.6 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position (S16.2.10.3)

[X] N/A – No independent fore-aft seat cushion adjustment

[X] 1.7 Using any part of any control, other than the parts just used for fore-aft positioning, determine the range of angles of the seat cushion reference line and set the seat cushion reference line at the mid-angle.

[X] Maximum Angle: 11.0 degrees nose down

[X] Minimum Angle: 1.0 degrees nose up

[X] Mid-angle: 5.0 degrees nose down

[X] 1.8 If the seat and/or seat cushion height is adjustable, use any part of any control other than those which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.7.

[ ] N/A – No seat height adjustment

[X] 1.9 Using only the controls that primarily move the seat in the fore-aft direction, verify the seat is in the rearmost position.

[X] 1.10 Using only the controls that primarily move the seat in the fore-aft direction, mark for future reference the fore-aft seat positions. Mark each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.

[X] 1.11 Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position.

X 1.12 Using any controls, other than the controls that primarily move the seat and/or seat cushion in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7.

X 1.13 Using only the controls that primarily move the seat and/or seat cushion in the fore-aft direction, place the seat in the mid-fore-aft position.

X 1.14 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7.

X 1.15 Using only the controls that change the seat in the fore-aft direction, place the seat in the foremost position.

X 1.16 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7.

X 1.17 Visually mark for future reference the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.

☐ N/A – No seat back angle adjustment

X Manufacturer's design seat back angle: 25.9 degrees on seat back

X 1.18 Is the seat a bucket seat?

X Yes, go to 1.18.1 and skip 1.18.2

☐ No, go to 1.18.2 and skip 1.18.1

1.18.1 Bucket seats:

X Locate and mark for future reference the longitudinal centerline of the seat cushion. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle. (S16.3.1.10)

X Record the width of the seat cushion: Used SRP provided by HMC

X One half the width of the seat cushion is: Used SRP provided by HMC

X Record the distance from the edge of the seat cushion to the seat mark: 255 mm

1.18.2 Bench seats:

☐ Locate and mark for future reference the longitudinal line on the seat cushion that marks the longitudinal vertical plane through the centerline of the steering wheel.

2. Passenger Designated Seating Position

X 2.1 Is the seat adjustable independent of the driver seating position?

X Yes, go to 2.2

☐ No, go to 2.18

X 2.2 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions (S16.2.10.1, S20,1.9.1, S22.1.7.1)

X N/A – No lumbar adjustment

X 2.3 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S22.1.7.2)

X N/A – No additional support adjustment

X 2.4 Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion.

X 2.5 Draw a line (seat cushion reference line) through the seat cushion reference point.

X 2.6 Using only the controls that primarily move the seat in the fore-aft direction, move the seat cushion reference point to the rearmost position.

X 2.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position (S16.2.10.3, S20.1.9.3, S22.1.7.3)

X N/A – No independent fore-aft seat cushion adjustment.

X 2.8 Using any part of the control, other than the parts just used for fore-aft positioning, determine the range of angles of the seat cushion reference line and set the seat cushion reference line at the mid-angle.

X Maximum Angle: 0.0 degrees

X Minimum Angle: 0.0 degrees

X Mid-angle: 0.0 degrees

X 2.9 If the seat and/or seat cushion height is adjustable, use any part of any control other than those which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-range angle.

X N/A – No seat height adjustment

X 2.10 Using only the controls that primarily move the seat and/or seat cushion in the fore-aft direction, verify the seat is in the rearmost position.

X 2.11 Using only the controls that primarily move the seat in the fore-aft direction, mark for future reference the fore-aft seat positions. Mark each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.

X 2.12 Using only the controls that primarily move the seat in the fore-aft direction, place the seat in the rearmost position.

X 2.13 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.

N/A – No seat height adjustment Go to 2.18

X 2.14 Using only the controls that primarily move the seat in the fore-aft direction, place the seat in the mid-fore-aft position.

X 2.15 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.

X 2.16 Using only the controls that change the seat in the fore-aft direction, place the seat in the foremost position.

X 2.17 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.

X 2.18 Visually mark for future reference the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.

☐ N/A – No seat back angle adjustment

☐ N/A – The seat back angle adjustment is controlled by the setting of the driver seat back angle.

X Manufacturer's design seat back angle: 25.9 degrees on seat back

X Actual seat back angle: 25.9 degrees on seat back

X 2.19 Is the seat a bucket seat?

X Yes, go to 2.19.1 and skip 2.19.2

☐ No, go to 2.19.2 and skip 2.19.1

2.19.1 Bucket seats:

X Locate and mark for future reference the longitudinal centerline of the seat cushion. (S20.2.1.3, S22.2.1.3) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle. (S20.1.10)

X Record the width of the seat cushion: Used SRP provided by HMC

X One half the width of the seat cushion is: Used SRP provided by HMC

X Record the distance from the edge of the seat cushion to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) 255 mm

2.19.2 Bench seats:

☐ Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3)

☐ Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel:

☐ Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.)

X 3. Head Restraints

☐ N/A, vehicle contains automatic head restraints

X N/A, there is no head restraint adjustment

X 3.1 Left outboard

☐ 3.1.1 Adjust the head restraint to its lowest position. (S16.3.4.2)

☐ 3.1.2 Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position.

X 3.1.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance.

X Vertical height of head restraint (mm): 200

X Mid-point height (mm): 100

X 3.2 Right outboard

☐ 3.2.1 Adjust the head restraint to its lowest position. (S16.3.4.2)

☐ 3.2.2 Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position.

☒ 3.2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance.

☒ Vertical height of head restraint (mm): 200

☒ Mid-point height (mm): 100

☒ 4. Steering Wheel

☒ 4.1 Is the steering wheel adjustable up and down and/or in and out?

☒ Yes, go to 4.2

☐ No, this form is complete

☒ 4.2 Find and **mark** for future reference each up and down position. Label three of the positions with the following: H for highest, M for mid-position (if there is no mid-position, label the next lowest adjustment position), and L for lowest.

☐ N/A, steering wheel is not adjustable up and down

☒ 4.3 Find and **mark** for future references each in and out position. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the next rearmost adjustment position), and R for rearmost.

☒ N/A, steering wheel is not adjustable in and out

☒ 5. Driver Low Risk Deployment

☐ N/A, no low risk deployment tests scheduled

☒ 5.1 Position the steering wheel so the front wheels are in the straight-ahead position. (S26.2.1)

☒ 5.2 Position any adjustable parts of the steering controls to the mid-position as determined in item 3 above. If a mid-position adjustment is not achievable, position the controls to the next lowest detent position. (S26.2.1)

☒ 5.3 Locate the vertical plane parallel to the vehicle longitudinal centerline through the geometric center of the opening through which the driver air bag deploys into the occupant compartment. This is referred to as “Plane E”. (Check determination method below.) (S26.2.6)

☒ Plane E determined using manufacturer’s information supplied by the COTR . (Found in Appendix D on page D-33)

☐ Plane E determined by test lab personnel and approved by the COTR. (Include supporting documentation in the test report.)

	Ey (mm)
“Plane E” Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

X 5.4 Locate the horizontal plane through the highest point of the air bag module cover. This is referred to as “Plane F." (Check determination method below.) (S26.2.6)

X Plane F determined using manufacturer’s information supplied by the COTR . (Found in Appendix D on page D-33)

☐ Plane F determined by test lab personnel and approved by the COTR. (Include supporting documentation in the test report.)

	Fz (mm)
“Plane F” Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

X 6. Passenger Low Risk Deployment – Planes C and D

X N/A, no low risk deployment tests scheduled

☐ 6.1 Locate the horizontal plane through the geometric center of the opening through which the right front air bag deploys into the occupant compartment. This is referred to as "Plane C." (Check location method below.) (S22.4.1.3)

☐ Plane C located using manufacturer’s information supplied by the COTR. (Include manufacturer’s information in the test report.) OR

☐ Plane C located by test lab personnel and approved by the COTR. (Include supporting documentation in the test report.)

	Cz (mm)
“Plane C” Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

☐ 6.2 Locate the vertical plane parallel to the vehicle longitudinal centerline through the geometric center of the opening through which the right front air bag deploys into the occupant compartment. This is referred to as “Plane D." (Check determination method below.) (S22.4.1.2)

☐ Plane D determined using manufacturer’s information supplied by the COTR. (Include manufacturer’s information in the test report.) OR

☐ Plane D determined by test lab personnel and approved by the COTR. (Include supporting documentation in the test report.)

	Dy (mm)
“Plane D” Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

☐ 6.3 **Mark** the intersection of Planes C and D on the instrument panel.

☒ 7. 5th Female Dummy
Mark a point on the chin of the dummy 40 mm below the center of the mouth. (Chin Point) (S26.2.6)

☐ 8. 6-Year-Old Dummy
Locate and **mark** a point on the front of the dummy's chest jacket on the midsaggital plane which is 139 mm (5.5 in) ± 3 mm (± 0.1 in) along the surface of the skin down from the top of the skin at the neck line. Designate this point as "Point 1." (S24.4.1.1)

☐ "Point 1" measurement (mm):

☐ 9. 3-Year-Old Dummy
Locate and **mark** a point on the front of the dummy's chest jacket on the midsaggital plane which is 114 mm (4.5 in) ± 3 mm (± 0.1 in) along the surface of the skin down from the top of the skin at the neck line. Designate this point as "Point 1." (S22.4.1.1)

☐ "Point 1" measurement (mm +/- 3 mm):

REMARKS:
I certify that I have read and performed each instruction.

Signature: _____ Date: 4/19/06

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C50510	TEST DATE:	5-12-05
LABORATORY:	MGA	TECHNICIANS:	TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Handle With Care 191
DATE OF MANUFACTURE:	5-26-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 3 *	133	Suppressed	Not Done
	Middle	131	Suppressed	Not Done
	Rearward	133	Suppressed	Not Done
Unbelted Rear Facing	Forward 4 *	N/A	Suppressed	Not Done
	Middle	N/A	Suppressed	Not Done
	Rearward	N/A	Suppressed	Not Done
Unbelted Forward Facing	Forward 3 *	N/A	Suppressed	Not Done
	Middle	N/A	Suppressed	Not Done
	Rearward	N/A	Suppressed	Not Done

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rear position. (SN505)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C50510	TEST DATE:	5-11-05
LABORATORY:	MGA	TECHNICIANS:	TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	First Choice 204
DATE OF MANUFACTURE:	6-20-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward	N/A	Won't Fit	Won't Fit
	Middle	128	Not Done	Suppressed
	Rearward	131	Not Done	Suppressed
Unbelted Rear Facing	Forward	N/A	Won't Fit	Won't Fit
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed
Unbelted Forward Facing	Forward 7 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN505)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C50510	TEST DATE:	5-12-05
LABORATORY:	MGA	TECHNICIANS:	TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: _X_On ___ Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 3 *	127	Not Done	Suppressed
	Middle	133	Not Done	Suppressed
	Rearward	128	Suppressed	Not Done
Unbelted Rear Facing	Forward 10 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Suppressed	Not Done
Unbelted Forward Facing	Forward 6 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C50510	TEST DATE:	5-12-05
LABORATORY:	MGA	TECHNICIANS:	TB
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: __On _X_Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 7 *	133	Not Done	Suppressed
	Middle	133	Not Done	Suppressed
	Rearward	128	Suppressed	Not Done
Unbelted Rear Facing	Forward 9 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Suppressed	Not Done
Unbelted Forward Facing	Forward 5 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN505)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	5-11-05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

A blanket was not used in the suppression testing because it did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	133	Suppressed
	Middle	130	Suppressed
	Rearward	130	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	131	Suppressed
	Middle	127	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN505)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	5-11-05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

A blanket was not used in the suppression testing because it did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	128	Suppressed
	Middle	128	Suppressed
	Rearward	131	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	129	Suppressed
	Middle	133	Suppressed
	Rearward	131	Suppressed
Unbelted Rear Facing	Forward 4 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN505)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	5-11-05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

A blanket was not used in the suppression testing because it did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	127	Suppressed
	Middle	130	Suppressed
	Rearward	132	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	128	Suppressed
	Middle	133	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward 3 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN505)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 16 SUMMARY

Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K)
Section A Car Bed

NHTSA No.:	C50510	TEST DATE:	5-11-05
LABORATORY:	MGA	TECHNICIANS:	TB
DUMMY TYPE:	Newborn Infant	DUMMY SERIAL NO.:	003

CAR BED NAME:	Cosco
CAR BED MODEL:	Dream Ride 02-719
DATE OF MANUFACTURE:	6-16-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base
(A car bed with a removable base shall be treated as two separate models, i.e. this form and test procedure will be completed with the base on and then repeated on a new form with the base off.

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Handle Down	Handle Up
Belted	Forward	Suppressed	Won't Fit
	Middle	Suppressed	Not Done
	Rearward	Suppressed	Not Done

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN505)

DATA SHEET 17 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Belt Positioning Booster

NHTSA No.:	C50510	TEST DATE:	5-12-05
LABORATORY:	MGA	TECHNICIANS:	TB
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward 6 *	9	Suppressed
	Middle	9	Suppressed
	Rearward	11	Suppressed
Belted Forward Facing Cinched With Harness	Forward 8 *	131	Suppressed
	Middle	133	Suppressed
	Rearward	133	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN505)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C50510	TEST DATE:	5-12-05
LABORATORY:	MGA	TECHNICIANS:	TB
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward 9 *	9	Suppressed
	Middle	13	Suppressed
	Rearward	13	Suppressed
Belted Forward Facing Cinched With Harness	Forward 6 *	133	Suppressed
	Middle	133	Suppressed
	Rearward	128	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN505)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	5-11-05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 6 *	130	Suppressed
	Middle	129	Suppressed
	Rearward	131	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN505)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	5-11-05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	130	Suppressed
	Middle	131	Suppressed
	Rearward	130	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN505)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	5-11-05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	N/A	Won't Fit
	Middle	128	Suppressed
	Rearward	131	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN505)

DATA SHEET 19 SUMMARY

Suppression Test Using An Unbelted 3 Year Old Dummy (Part 572, Subpart P)
No CRS

NHTSA No.:	C50510	TEST DATE:	5-25-05
LABORATORY:	MGA	TECHNICIANS:	AH
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

Test Summary

Position	Seat Slide	Seat Back Angle	Result
Position 1 Sitting on seat with back against seat back	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	50.9	Suppressed
	Middle	50.9	Suppressed
	Rearward	50.9	Suppressed
Position 3 Sitting on seat with back not against seat back	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 4 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 5 Standing on seat, facing forward	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 6 Kneeling on seat, facing forward	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 7 Kneeling on seat, facing rearward	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 8 Lying on seat. (Three designated seating positions only)	Forward	N/A	N/A
	Middle	N/A	N/A
	Rearward	N/A	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN505)

DATA SHEET 19H

Suppression Test Using a Representative 6-Year-Old Child and Booster Seats (S24.2.1)

NHTSA No.:	C50510	TEST DATE:	5-18-05
LABORATORY:	MGA	TECHNICIANS:	JL
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	009

(Child Identification Code 009; 22.7 kg 120.7 cm)

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

Test Summary

Seat Belt	Seat Slide	Belt Load (N)	Result
Belted	Forward	9	Suppressed
	Middle	13	Suppressed
	Rearward	12	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN505)

DATA SHEET 19H

Suppression Test Using a Representative 6-Year-Old Child and Booster Seats (S24.2.1)

NHTSA No.:	C50510	TEST DATE:	5-18-05
LABORATORY:	MGA	TECHNICIANS:	JL
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	009

(Child Identification Code 009; 22.7 kg 120.7 cm)

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

Test Summary

Seat Belt	Seat Slide	Belt Load (N)	Result
Belted	Forward 4 *	10	Suppressed
	Middle	12	Suppressed
	Rearward	11	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN505)

* The child would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 19H

Suppression Test Using a Representative 6-Year-Old Child and Booster Seats (S24.2.1)

NHTSA No.:	C50510	TEST DATE:	5-18-05
LABORATORY:	MGA	TECHNICIANS:	JL
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	009

(Child Identification Code 009; 22.7 kg 120.7 cm)

BOOSTER SEAT NAME:	Evenflo
BOOSTER SEAT MODEL:	Right Fit 245
DATE OF MANUFACTURE:	6-26-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd From Top
Tested anchorage position: 2nd From Top

Test Summary

Seat Belt	Seat Slide	Belt Load (N)	Result
Belted	Forward	12	Suppressed
	Middle	12	Suppressed
	Rearward	10	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN505)

DATA SHEET 20H SUMMARY

Suppression Tests Using an Unbelted Representative 6-Year-Old Child (S24.2.1)
No CRS

NHTSA No.:	C50510	TEST DATE:	5-17-05
LABORATORY:	MGA	TECHNICIANS:	JL/AH
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	009

(Child Identification Code 009; 22.7 kg 120.7 cm)

Test Summary

Position	Seat Slide	Seat Back Angle	Result
Position 1 Sitting on seat with back against seat back	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	49.0	Suppressed
	Middle	49.0	Suppressed
	Rearward	49.0	Suppressed
Position 3 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Not Suppressed
Position 4 Sitting on seat with back against seat back then leaning on the door	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN505)

DATA SHEET 20H SUMMARY

Suppression Tests Using an Unbelted Representative 6-Year-Old Child (S24.2.1)
No CRS

NHTSA No.:	C50510	TEST DATE:	5-24-05
LABORATORY:	MGA	TECHNICIANS:	JL/AH
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	006

(Child Identification Code 006; 26.0 kg 124.5 cm)

Test Summary

Position / Trial	Seat Slide	Seat Back Angle	Result
Position 3 / Series 1 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Suppressed
Position 3 / Series 2 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Not Suppressed
Position 3 / Series 3 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Suppressed
Position 3 / Series 4 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Suppressed

Due to the Not Suppressed results from 5-18-2005 for 6-Year-Old Child (S24.2.1) in Position 3; multiple tests were conducted for Position 3.

DATA SHEET 20H SUMMARY

Suppression Tests Using an Unbelted Representative 6-Year-Old Child (S24.2.1)
No CRS

NHTSA No.:	C50510	TEST DATE:	6-2-05
LABORATORY:	MGA	TECHNICIANS:	JL/AH
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	009

(Child Identification Code 009; 22.7 kg 120.7 cm)

Test Summary

Position / Trial	Seat Slide	Seat Back Angle	Result
Position 3 / Series 1 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Not Suppressed
Position 3 / Series 2 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Suppressed
Position 3 / Series 3 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Not Suppressed

Due to the Not Suppressed results from 5-18-2005 for 6-Year-Old Child (S24.2.1) in Position 3; multiple tests were conducted for Position 3.

DATA SHEET 20H SUMMARY

Suppression Tests Using an Unbelted Representative 6-Year-Old Child (S24.2.1)
No CRS

NHTSA No.:	C50510	TEST DATE:	6-3-05
LABORATORY:	MGA	TECHNICIANS:	JL/AH
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	014

(Child Identification Code 014; 23.3 kg 118.5 cm)

Test Summary

Position / Trial	Seat Slide	Seat Back Angle	Result
Position 3 / Series 1 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Not Suppressed
Position 3 / Series 2 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Not Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Not Suppressed
Position 3 / Series 3 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Suppressed
	Middle	25.9	Not Suppressed
	Rearward	25.9	Not Suppressed

Due to the Not Suppressed results from 5-18-2005 for 6-Year-Old Child (S24.2.1) in Position 3; multiple tests were conducted for Position 3.

DATA SHEET 15 SUMMARY

Initial Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	1/11/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	083

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket was not used in the suppression testing because it did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	127	Suppressed
	Middle	128	Suppressed
	Rearward	131	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	128	Suppressed
	Middle	127	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted Representative Female Human Reactivation was performed with the seat in the Rearward position. (Human Identification Code 031; 54.4 kg 170.2 cm)

DATA SHEET 17 SUMMARY

Initial Suppression Test Using 3 Year Old Dummy And Booster Seats
(Part 572, Subpart P)
Section D Forward Facing Belt Positioning Booster

NHTSA No.:	C50510	TEST DATE:	1/11/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward 6 *	9	Suppressed
	Middle	12	Suppressed
	Rearward	13	Suppressed
Belted Forward Facing Cinched With Harness	Forward 8 *	130	Suppressed
	Middle	133	Suppressed
	Rearward	133	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN081)

* The child would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 20 SUMMARY

Initial Suppression Test Using 6 Year Old Dummy And Booster Seats
(Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C50510	TEST DATE:	1/11/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	153

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	10	Suppressed
	Middle	13	Suppressed
	Rearward	15	Suppressed

Successful Unbelted Representative Female Human Reactivation was performed with the seat in the Forward position. (Human Identification Code 031; 54.4 kg 170.2 cm)

DATA SHEET 20 SUMMARY

Initial Suppression Test Using 6 Year Old Dummy And Booster Seats
(Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C50510	TEST DATE:	1/11/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	153

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	13	Suppressed
	Middle	9	Suppressed
	Rearward	17	Suppressed

Successful Unbelted Representative Female Human Reactivation was performed with the seat in the Forward position. (Human Identification Code 030; 56.7 kg 165.1 cm)

DATA SHEET 15 SUMMARY

Post Recall Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	083

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Handle With Care 191
DATE OF MANUFACTURE:	5-26-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 3 *	129	Suppressed	Not Done
	Middle	129	Suppressed	Not Done
	Rearward	131	Suppressed	Not Done
Unbelted Rear Facing	Forward 5 *	N/A	Suppressed	Not Done
	Middle	N/A	Suppressed	Not Done
	Rearward	N/A	Suppressed	Not Done
Unbelted Forward Facing	Forward 3 *	N/A	Suppressed	Not Done
	Middle	N/A	Suppressed	Not Done
	Rearward	N/A	Suppressed	Not Done

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN081)

* The child would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft position with respect to the foremost position. (1 = Full Forward; 24 = Full Rearward; 24 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Post Recall Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	083

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	First Choice 204
DATE OF MANUFACTURE:	6-20-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward	133	Won't Fit	Won't Fit
	Middle	130	Not Done	Suppressed
	Rearward	127	Not Done	Suppressed
Unbelted Rear Facing	Forward	N/A	Won't Fit	Won't Fit
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed
Unbelted Forward Facing	Forward 7 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN081)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Post Recall Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	083

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: _X_On __Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 3 *	131	Not Done	Suppressed
	Middle	131	Not Done	Suppressed
	Rearward	127	Not Done	Suppressed
Unbelted Rear Facing	Forward 10 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed
Unbelted Forward Facing	Forward 6 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Post Recall Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	083

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: __On _X_Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 7 *	131	Not Done	Suppressed
	Middle	130	Not Done	Suppressed
	Rearward	131	Not Done	Suppressed
Unbelted Rear Facing	Forward 9 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed
Unbelted Forward Facing	Forward 5 *	N/A	Not Done	Suppressed
	Middle	N/A	Not Done	Suppressed
	Rearward	N/A	Not Done	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN081)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Post Recall Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	083

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket was not used in the suppression testing because it did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	130	Suppressed
	Middle	127	Suppressed
	Rearward	133	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	128	Suppressed
	Middle	130	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN081)

DATA SHEET 15 SUMMARY

Post Recall Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	083

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket was not used in the suppression testing because it did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	133	Suppressed
	Middle	129	Suppressed
	Rearward	130	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	129	Suppressed
	Middle	131	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward 4 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN081)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Post Recall Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	083

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket was not used in the suppression testing because it did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	131	Suppressed
	Middle	128	Suppressed
	Rearward	132	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	131	Suppressed
	Middle	127	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward 3 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN081)

DATA SHEET 16 SUMMARY

Post Recall Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K)
Section A Car Bed

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	Newborn Infant	DUMMY SERIAL NO.:	003

CAR BED NAME:	Cosco
CAR BED MODEL:	Dream Ride 02-719
DATE OF MANUFACTURE:	6-16-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base
(A car bed with a removable base shall be treated as two separate models, i.e. this form and test procedure will be completed with the base on and then repeated on a new form with the base off.

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Handle Down	Handle Up
Belted	Forward	Won't Fit	Won't Fit
	Middle	Suppressed	Not Done
	Rearward	Suppressed	Not Done

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN081)

DATA SHEET 17 SUMMARY

Post Recall Suppression Test Using 3 Year Old Dummy And Booster Seats
(Part 572, Subpart P)
Section D Forward Facing Belt Positioning Booster

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward 6 *	9	Suppressed
	Middle	16	Suppressed
	Rearward	10	Suppressed
Belted Forward Facing Cinched With Harness	Forward 8 *	130	Suppressed
	Middle	127	Suppressed
	Rearward	129	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the 6th Forward position. (SN081)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 17 SUMMARY

Post Recall Suppression Test Using 3 Year Old Dummy And Booster Seats
(Part 572, Subpart P)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward 9 *	10	Suppressed
	Middle	11	Suppressed
	Rearward	17	Suppressed
Belted Forward Facing Cinched With Harness	Forward 6 *	132	Suppressed
	Middle	132	Suppressed
	Rearward	131	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the 9th Forward position. (SN081)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Post Recall Suppression Test Using 3 Year Old Dummy And Convertible Restraints
(Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 6 *	130	Suppressed
	Middle	131	Suppressed
	Rearward	127	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN081)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Post Recall Suppression Test Using 3 Year Old Dummy And Convertible Restraints
(Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 7 *	128	Suppressed
	Middle	132	Suppressed
	Rearward	128	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN081)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 25 = Full Rearward; 25 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Post Recall Suppression Test Using 3 Year Old Dummy And Convertible Restraints
(Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	Won't Fit	Won't Fit
	Middle	127	Suppressed
	Rearward	131	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN081)

DATA SHEET 19 SUMMARY

Post Recall Suppression Test Using An Unbelted 3 Year Old Dummy (Part 572, Subpart P)
No CRS

NHTSA No.:	C50510	TEST DATE:	1/18/06
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

Test Summary

Position	Seat Slide	Seat Back Angle	Result
Position 1 Sitting on seat with back against seat back	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	50.9	Suppressed
	Middle	50.9	Suppressed
	Rearward	50.9	Suppressed
Position 3 Sitting on seat with back not against seat back	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 4 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 5 Standing on seat, facing forward	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 6 Kneeling on seat, facing forward	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 7 Kneeling on seat, facing rearward	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 8 Lying on seat. (Three designated seating positions only)	Forward	N/A	N/A
	Middle	N/A	N/A
	Rearward	N/A	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN081)

DATA SHEET 22H SUMMARY (TP208-13)

Post Recall Suppression Test Using a Representative 6-Year-Old Child and Booster Seats (S24.2.1)

Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C50510	TEST DATE:	1-23-06
LABORATORY:	MGA	TECHNICIANS:	JL/TB
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	014

(Child Identification Code 014; 24.7 kg 123.4 cm)

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	11	Suppressed
	Middle	13	Suppressed
	Rearward	12	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN081)

DATA SHEET 22H SUMMARY (TP208-13)

Post Recall Suppression Test Using a Representative 6-Year-Old Child and Booster Seats (S24.2.1)

Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C50510	TEST DATE:	1-23-06
LABORATORY:	MGA	TECHNICIANS:	JL/TB
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	014

(Child Identification Code 014; 24.7 kg 123.4 cm)

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	13	Suppressed
	Middle	9	Suppressed
	Rearward	11	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN081)

DATA SHEET 22H SUMMARY (TP208-13)

Post Recall Suppression Test Using a Representative 6-Year-Old Child and Booster Seats (S24.2.1)

Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C50510	TEST DATE:	1-23-06
LABORATORY:	MGA	TECHNICIANS:	JL/TB
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	014

(Child Identification Code 014; 24.7 kg 123.4 cm)

BOOSTER SEAT NAME:	Evenflo
BOOSTER SEAT MODEL:	Right Fit 245
DATE OF MANUFACTURE:	6-26-2000

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Manufacturer's specified anchorage position: 2nd Down
Tested anchorage position: 2nd Down

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	9	Suppressed
	Middle	12	Suppressed
	Rearward	9	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN081)

DATA SHEET 23H SUMMARY (TP208-13)

Suppression Tests Using an Unbelted Representative 6-Year-Old Child (S24.2.1)
No CRS

NHTSA No.:	C50510	TEST DATE:	1-23-06
LABORATORY:	MGA	TECHNICIANS:	JL/TB
SUBJECT TYPE:	6 Year Old	CHILD IDENTIFICATION CODE:	014

(Child Identification Code 014; 24.7 kg 123.4 cm)

Test Summary

Position	Seat Slide	Seat Back Angle	Result
Position 1 Sitting on seat with back against seat back	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	50.9	Suppressed
	Middle	50.9	Suppressed
	Rearward	50.9	Suppressed
Position 3 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed
Position 4 Sitting on seat with back against seat back then leaning on the door	Forward	25.9	Suppressed
	Middle	25.9	Suppressed
	Rearward	25.9	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN081)

DATA SHEET 27 SUMMARY (TP208-12)

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female
Dummy (Part 572, Subpart O) (S26)
Position 1 - Chin On Module (S26.2)

NHTSA No.:	C50510	TEST DATE:	5-18-05
LABORATORY:	MGA	TECHNICIANS:	BR/AH
DUMMY TYPE:	5th Percentile Female	DUMMY SERIAL NO.:	511

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 25.9° seat back angle
Tested seat position: Full Aft

Tested steering wheel angle: 29.2°
Thorax cavity angle: 35.1°
Bottom of chin height: 6 mm Above Module

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	120.0	120.4

5th Percentile Female SN 511 Position 1 (Chin On Module) 5-18-05

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	8
Peak Nij (Nte)	1.0	0.4
Time (ms)	NA	41.6
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	8.9
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	241.8
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	0.1
Neck Tension	2070 N	699
Neck Compression	2520 N	6
Chest g	60 g	16
Chest Displacement	52 mm	5
Left Femur	6805 N	49
Right Femur	6805 N	49

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
Second stage fire time of 120 ms; Injuries calculated on 0 ms to 245 ms

DATA SHEET 30 SUMMARY (TP208-13)

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female
Dummy (Part 572, Subpart O) (S26)
Position 2 - Chin On Rim (S26.3)

NHTSA No.:	C50510	TEST DATE:	2-14-06
LABORATORY:	MGA	TECHNICIANS:	BR/BS
DUMMY TYPE:	5th Percentile Female	DUMMY SERIAL NO.:	505

Manufacturer's design seat back angle: 25.9° seat back angle
Tested seat back angle: 26.0° seat back angle
Tested seat position: Full Aft

Tested steering wheel angle: 29.0°
Thorax cavity angle: 34.7°
Chin Point height: 2 mm Below Steering Wheel Target
Note:
The chin on rim steering wheel target is 10 mm below the highest point on the steering wheel

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	120.0	120.3

5th Percentile Female SN 505 Position 2 (Chin On Rim) 2-14-06

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	10
Peak Nij (Nte)	1.0	0.6
Time (ms)	NA	13.4
Peak Nij (Ntf)	1.0	0.1
Time (ms)	NA	26.1
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	189.5
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	95.8
Neck Tension	2070 N	667
Neck Compression	2520 N	85
Chest g	60 g	27
Chest Displacement	52 mm	17
Left Femur	6805 N	33
Right Femur	6805 N	55

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
Second stage fire time of 120 ms; Injuries calculated on 0 ms to 245 ms

DATA SHEET 32

VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/19/06

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

X 1. Fill the transmission with transmission fluid to the satisfactory range.

X 2. Drain fuel from vehicle

X 3. Run the engine until fuel remaining in the fuel delivery system is used and the engine stops.

X 4. Record the useable fuel tank capacity supplied by the COTR

X Useable Fuel Tank Capacity supplied by COTR: 71.9 liters (19.0 gallons)

X 5. Record the fuel tank capacity supplied in the owner's manual.

X Useable Fuel Tank Capacity in owner's manual: 71.9 liters (19.0 gallons)

X 6. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," or gasoline, fill the fuel tank.

X Amount Added: 71.9 liters (19.0 gallons)

X 7. Fill the coolant system to capacity.

X 8. Fill the engine with motor oil to the Max. mark on the dip stick.

X 9. Fill the brake reservoir with brake fluid to its normal level.

X 10. Fill the windshield washer reservoir to capacity.

X 11. Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner's manual.

Tire placard pressure:	RF:	30 psi	LF:	30 psi	RR:	30 psi	LR:	30 psi
Owner's manual pressure:	RF:	30 psi	LF:	30 psi	RR:	30 psi	LR:	30 psi
Actual inflated pressure:	RF:	30 psi	LF:	30 psi	RR:	30 psi	LR:	30 psi

X 12. Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight).

Right Front (kg):	552.9	Right Rear (kg):	356.1
Left Front (kg):	549.8	Left Rear (kg):	345.2
Total Front (kg):	1102.7	Total Rear (kg):	701.3
% Total Weight:	60.1	% Total Weight:	38.9
UVW = TOTAL FRONT PLUS TOTAL REAR (KG):			1804.0

X 13. UVW Test Vehicle Attitude: (All dimensions in millimeters)

X 13.1 Mark a point on the vehicle above the center of each wheel.

X 13.2 Place the vehicle on a level surface.

X 13.3 Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements

RF:	788	LF:	789	RR:	814	LR:	810

X 14. Calculate the Rated Cargo and Luggage Weight (RCLW): 60 kg for test

X 14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?

X X Yes, go to 14.3

No, go to 14.2

14.2 VCW = Gross Vehicle Weight – UVW

VCW = _____ - _____ = _____

X 14.3 VCW = 400 kg (880 lbs)

X 14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?

X Yes, go to 14.6

No, go to 14.5 and skip 14.6

14.5 DSC = Total number of seat belt assemblies = _____

X 14.6 DSC = 5

X 14.7 RCLW = VCW – (68 kg x DSC) = 400 kg - (68 kg x 5) = 60 kg

X 14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?

X Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)

No, use the RCLW calculated in 14.7

X 15. Fully Loaded Weight (100% fuel fill): 1960.9 kg

X 15.1 Place the appropriate test dummy in both front outboard seating positions.

Driver: X 5th female __50th male
Passenger: X 5th female __50th male

X 15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.

X 15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (d))

X 15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

Right Front (kg):	577.4	Right Rear (kg):	394.2
Left Front (kg):	584.2	Left Rear (kg):	405.1
Total Front (kg):	1161.6	Total Rear (kg):	799.3
% Total Weight:	59.2	% Total Weight:	40.8
% GVW	54.2	% GVW	56.4
(% GVW = Axle GVW divided by Vehicle GVW)			
Fully Loaded Weight = Total Front Plus Total Rear (kg):			1960.9 kg

X 16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)

X 16.1 Place the vehicle on a level surface.

X 16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements

RF:	790	LF:	790	RR:	814	LR:	811

X 17. Drain the fuel system

X 18. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," fill the fuel tank to 92 - 94 percent of useable capacity.

X Fuel tank capacity x .94 = 71.9 liters (19.0 gallons) x .94 = 67.6 liters (17.9 gallons)

X Amount added 66.2 liters (17.4 gallons) 92%

X 19. Crank the engine to fill the fuel delivery system with Stoddard solvent

X 20. Calculate the test weight range.

X 20.1 Calculated Weight = UVW (see 12 above) + RCLW (see 14 above) + 2x(dummy weight)

1962.0 kg = 1804.0 kg + 60.0 kg + 98.0 kg

X 20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)
Max. Test Weight = Calculated Test Weight – 4.5 kg = 1957.5 kg
Min. Test Weight = Calculated Test Weight – 9 kg = 1953.0 kg

X 21. Remove the RCLW from the cargo area.

X 22. Drain transmission fluid, engine coolant, motor oil, and windshield washer fluid from the test vehicle so that Stoddard solvent leakage from the fuel system will be evident.

X 23. Vehicle Components Removed For Weight Reduction:
None

X 24. Secure the equipment and ballast in the load carrying area and distribute it, as nearly as possible, to obtain the proportion of axle weight indicated by the gross axle weight ratings and center it over the longitudinal centerline of the vehicle.

X 25. If necessary, add ballast to achieve the actual test weight.

N/A

X Weight of Ballast: 31.8 kg in rear cargo area

X 26. Ballast, including test equipment, must be contained so that it will not shift during the impact event or interfere with data collection or interfere with high-speed film recordings or affect the structural integrity of the vehicle or do anything else to affect test results. Care must be taken to assure that any attachment hardware added to the vehicle is not in the vicinity of the fuel tank or lines.

X 27. Record the vehicle weight at each wheel to determine the actual test weight.

Right Front (kg):	576.5	Right Rear (kg):	395.5
Left Front (kg):	576.1	Left Rear (kg):	407.3
Total Front (kg):	1152.6	Total Rear (kg):	802.8
% Total Weight:	59.0	% Total Weight:	41.0
% GVW	54.2	% GVW	56.4
(% GVW = Axle GVW divided by Vehicle GVW)			
TOTAL FRONT PLUS TOTAL REAR (kg):			1955.4

X 28. Is the test weight between the Max. Weight and the Min. Weight (See 20.2)?

X Yes

No, explain why not.

X 29. Test Weight Vehicle Attitude: (all dimensions in millimeters)

X 29.1 Place the vehicle on a level surface

X 29.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13 above) and record the measurements

RF:	790	LF:	790	RR:	814	LR:	810

X 30. Summary of test attitude

X 30.1 AS DELIVERED:

RF:	788	LF:	789	RR:	814	LR:	810

AS TESTED:

RF:	790	LF:	790	RR:	814	LR:	810

FULLY LOADED:

RF:	790	LF:	790	RR:	814	LR:	811

X 30.2 Is the "as tested" test attitude equal to or between the "fully loaded" and "as delivered" attitude?

X Yes

No, explain why not.

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Yosinski

Date: 4/19/06

DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/19/06

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

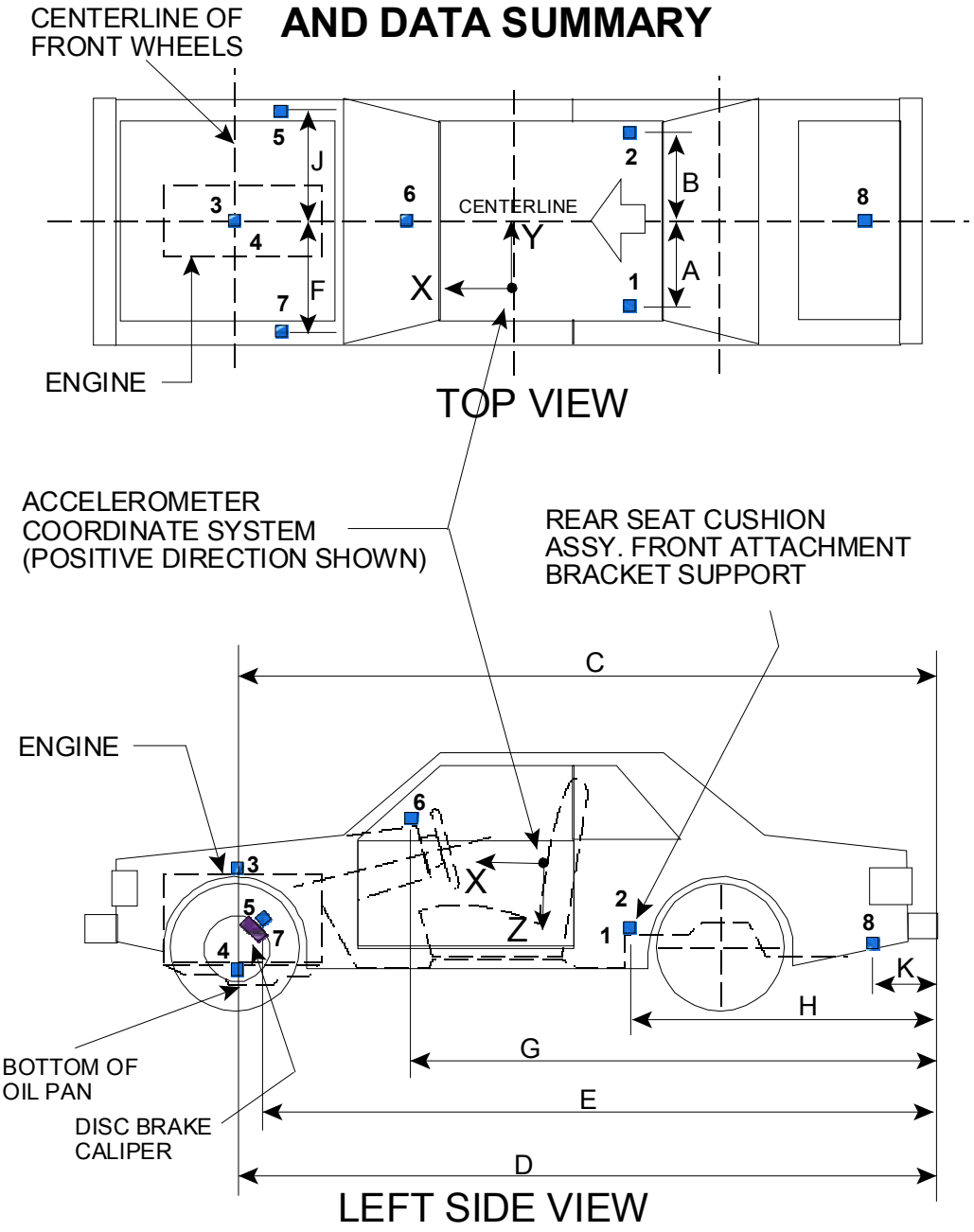
X	1.	Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
X	2.	Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
X	3.	Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
X	4.	Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart
X	5.	Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart
X	6.	Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart
X	7.	Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart
X	8.	Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski Date: 4/19/06

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



Dimensions Corresponding To The Letters “A” Through “K” (Excluding “I”) Are Recorded In The Table On The Following Page.
Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.

DATA SHEET 33
VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS

DIMENSION	LENGTH (mm)	
PRETEST VALUES		
A (LH Rear Seat Xmbr)	407	
B (RH Rear Seat Xmbr)	407	
C (Engine Top)	3792	
D (Engine Bottom)	3795	
E (Caliper)	Right Side 3680	Left Side 3680
F (Left Caliper)	690	
G (IP)	2875	
H (Seat)	1685	
J (Right Caliper)	690	
K (Trunk)	1125	
POST TEST VALUES		
A (LH Rear Seat Xmbr)	407	
B (RH Rear Seat Xmbr)	407	
C (Engine Top)	3722	
D (Engine Bottom)	3718	
E (Caliper)	Right Side 3676	Right Side 3678
F (Left Caliper)	695	
G (IP)	2875	
H (Seat)	1685	
J (Right Caliper)	690	
K (Trunk)	1125	

DATA SHEET 34

PHOTOGRAPHIC TARGETS

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/19/06

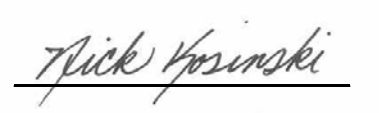
IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

X	1.	FMVSS 208 vehicle targeting requirements (See Figures 28A and 28B)
X	1.1	Targets A1 and A2 are on flat rectangular panels.
X	1.2	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it.
X		Distance between targets (mm): 100 mm
X	1.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it.
X		Distance between targets (mm): 100 mm
X	1.4	The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm.
X		Distance between the first and last circular targets (mm): 915 mm
X	1.5	Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy.
X	1.6	Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.
X	1.7	Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart.
X		Distance between targets (mm): 613 mm
X	1.8	Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart.
X		Distance between targets (mm): 613 mm
X	1.9	Place tape with squares having alternating colors on the top portion of the steering wheel.
X	1.10	Chalk the bottom portion of the steering wheel
X	1.11	Is this an offset test?
		Yes, continue with this section
X		No, go to 2.
	1.12	Measure the width of the vehicle.
		Vehicle width (mm):

	1.13	Find the centerline of the vehicle. (½ of the vehicle width)
	1.14	Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
	1.15	Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D
X	2.	Barrier Targeting
X	2.1	Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy
X	2.2	Targets D1 and D2 are on a rectangular panel.
X	2.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.
X		Distance between circular targets on D1 (mm): 100 mm
X		Distance between circular targets on D2 (mm): 100 mm
X	3.	FMVSS 208 Dummy Targeting Requirements
X	3.1	Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
X	3.2	Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
X	3.3	Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
X	3.4	Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
X	4.	FMVSS 204 Targeting Requirements
X	4.1	Is an FMVSS 204 indicant test ordered on the “COTR Vehicle Work Order?”
		Yes, continue with this form.
X		No, this form is complete.
	4.2	Resection panel (Figure 28C)
	4.2.1	The panel deviates no more than 6 mm from perfect flatness when suspended vertically
	4.2.2	The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.
	4.2.3	The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.
	4.2.4	Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.
	4.2.5	The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.

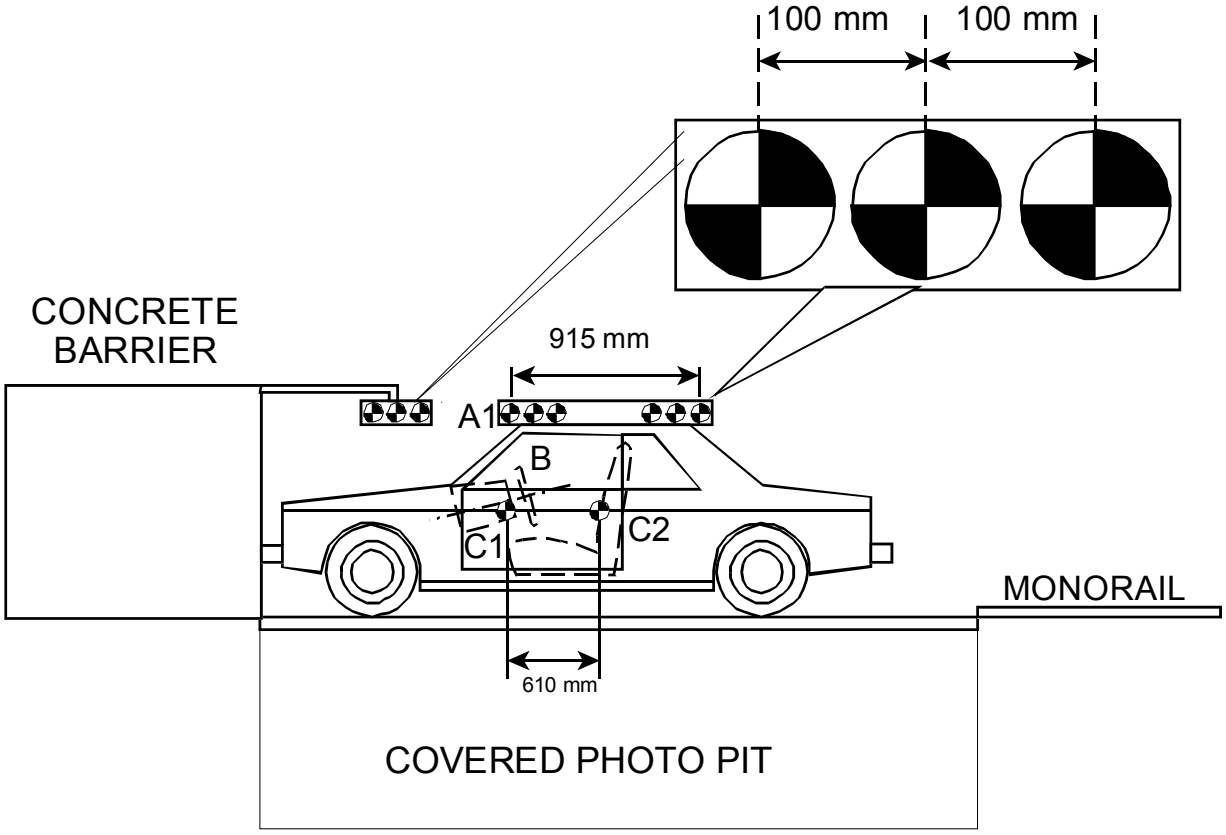
	4.3	Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.
	4.4	Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash

I certify that I have read and performed each instruction.

Signature: 

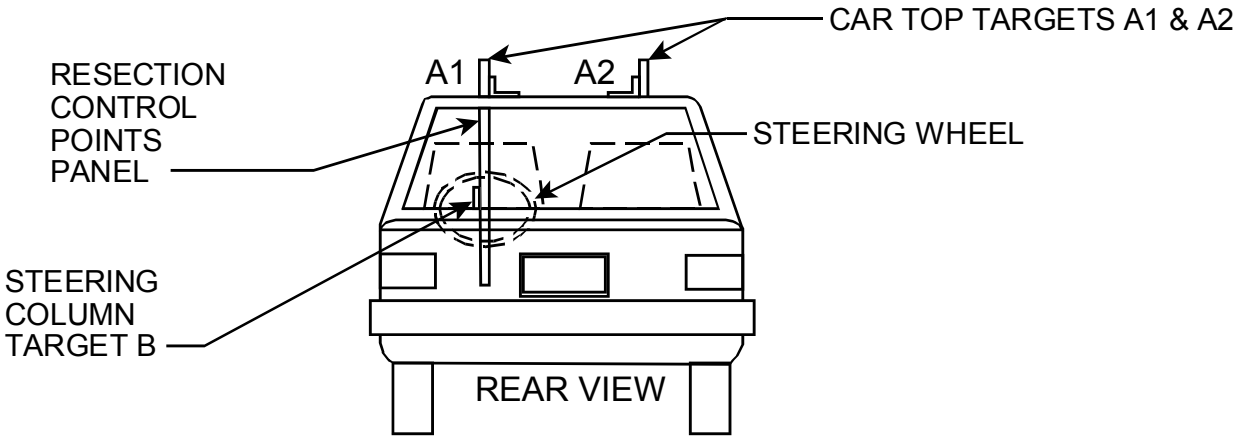
Date: 4/19/06

REFERENCE PHOTO TARGETS

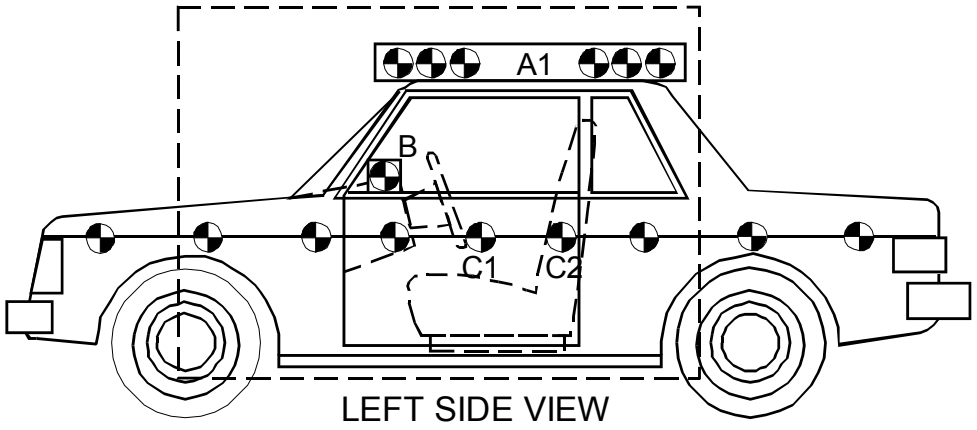


LEFT SIDE VIEW

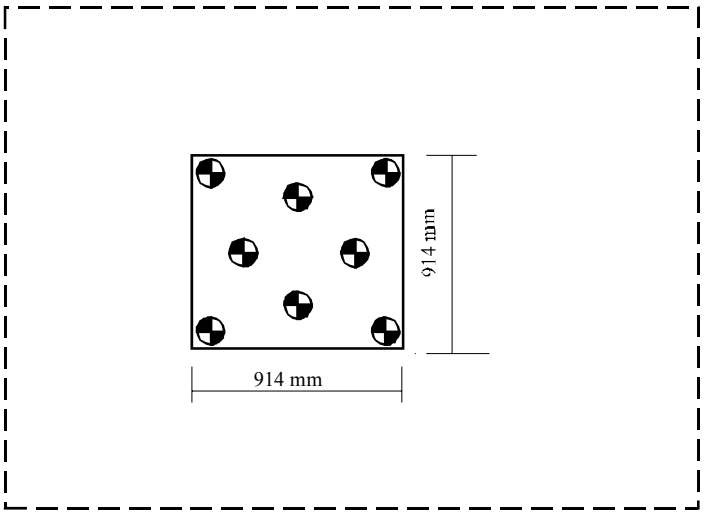
RESECTION PANEL TARGETING ALIGNMENT



TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION



PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW



LEFT SIDE VIEW

DATA SHEET 35

CAMERA LOCATIONS

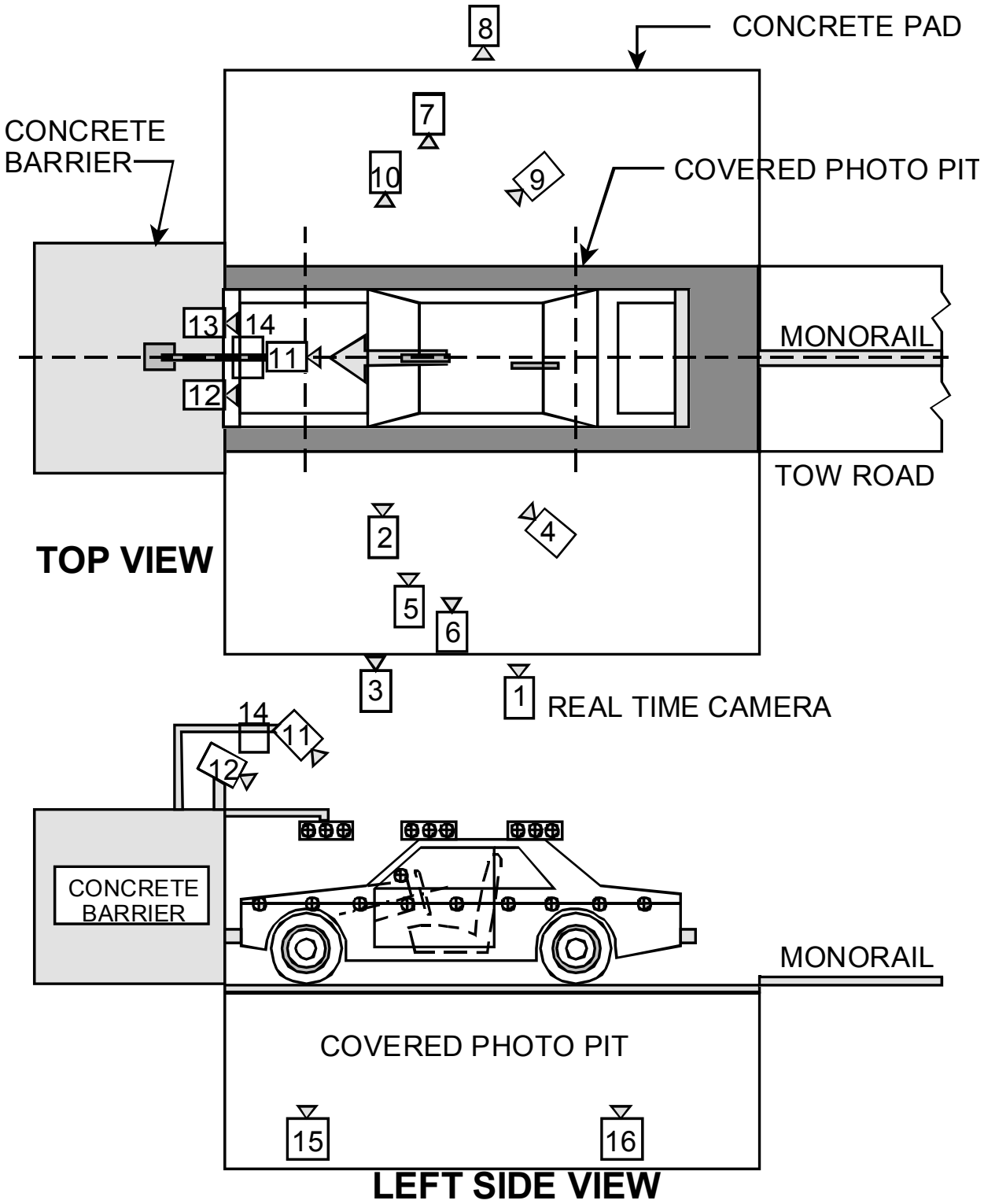
Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance

NHTSA No.: C50510
Test Date: 4/19/06
Time: 10:34 am

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			LENS (mm)	SPEED (fps)
		X	Y	Z		
1	Real Time Left Side View				13	24
2	Left Side View (Barrier face to front seat backs)	1005	-4700	1310	24	1000
3	Left Side View (Driver)	1685	-5820	1610	35	1000
4	Left Side View (B-post aimed toward center of steering wheel)	6480	-5230	2005	50	1000
5	Left Side View (Steering Column)	1600	-5200	1495	25	1000
6	Left Side View (Steering Column)	1600	-5090	1035	25	1000
7	Right Side View (Overall)	1830	6030	1360	19	1000
8	Right Side View (Passenger)	1620	5675	1655	35	1000
9	Right Side View (Angle)	6495	5245	2015	50	1000
10	Right Side View (Front door)	990	4690	1290	24	1000
11	Front View Windshield	-285	0	2370	12.5	1000
12	Front View Driver	-115	-390	2195	24	1000
13	Front View Passenger	-120	495	2195	24	1000
14	Overhead Barrier Impact View	815	0	5050	19	1000
15	Pit Camera Engine View	1215	0	-3150	24	1000
16	Pit Camera Fuel Tank View	2755	0	-3150	24	1000

*COORDINATES:
+X - forward of impact plane
+Y - right of monorail centerline
+Z - above ground level

CAMERA POSITIONS FOR FMVSS 208



DATA SHEET 36

APPENDIX G

DUMMY POSITIONING PROCEDURES
FOR 5th% DRIVER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/19/06
Test Technician: Joe Fleck

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

X 1. Using the markings made from data sheet 14.3 (If not done previously or steering repairs have been made, complete data sheet 14.3 at this time.) to position the steering controls in the mid-position or if applicable next lowest detent position. (S16.2.9)

X 2. Place the SCRP in the full rearward, mid-height position, and mid-seat cushion angle, determined during the completion of Data Sheet 14.1. (S16.3.2.1.1)

X 3. If the vehicle has an adjustable accelerator pedal, place it in the full forward position. (S16.3.2.2.1)
X N/A accelerator pedal not adjustable

X 4. Fully recline the seat back. (S16.3.2.1.2)
__ N/A seat back not adjustable.

X 5. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.2.1.2)

X 6. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in Data Sheet 14.1. (S16.3.2.1.3 and S16.3.2.1.4)

X 7. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.2.1.5)

X 8. Set the angle between the legs and the thighs to 120 degrees. (S16.3.2.1.6)

X 9. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Center the knee separation with respect to the longitudinal seat cushion marking as determined Data Sheet 14.1. (S16.3.2.1.6)
Record Knee Separation ___165___

X 10. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.2.1.6)
X Pelvis contacted seat back.
__Calves contacted seat cushion.

X 11. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side-to-side three time. (S16.3.2.1.7)

X 12. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.2.1.8)

X 13. Position the right foot until the foot is in line with a longitudinal vertical plane passing through the center of the accelerator pedal. Maintain the leg and thigh in a vertical plane. (S16.3.2.1.8)

X 14. Rotate the left leg and thigh laterally to equalize the distance between each knee and the longitudinal seat cushion marking as determined in Data Sheet 14.1. (S16.3.2.1.8)

X 15. Attempt to return the seat to the foremost fore-aft position, mid-height, and seat cushion mid-angle as determined in Data Sheet 14.2. The foot may contact and depress the accelerator and/or change the angle of the foot with respect to the leg. (S16.3.2.1.8)
X Foremost position achieved. Proceed to step 20.
__Foremost not achieved because of foot interference. Proceed to step 17.
__Foremost not achieved because of steering wheel contact.

__16. If either of the dummy's legs contact the steering wheel, move the steering wheel up the minimum amount required to avoid contact. If the steering wheel is not adjustable separate the knees the minimum required to avoid contact. (S16.3.2.1.8)
__N/A- there was no leg contact
__Steering wheel repositioned
__Knees separated

__17. If the left foot interferes with the clutch or brake pedals, rotate the left foot about the leg to provide clearance. If this is not sufficient, rotate the thigh outboard at the hip the minimum amount required for clearance. (S16.3.2.1.8)
__N/A, No foot interference with pedals.
__Foot adjusted to provide clearance.
__Foot and Thigh adjusted to provide clearance.

__18. Continue to move the seat. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14.1 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)
__Foremost, mid-height position and the seat cushion mid-angle reached
__Dummy contact. Clearance set at maximum of 5mm
Measured Clearance_____
__Dummy Contact. Seat set at nearest detent position.
Seat position ___ detent positions rearward of foremost
(foremost is position zero)

__19. If the steering wheel was repositioned in step 16, return the steering wheel to the original position. If the steering wheel contacts the dummy before reaching the original position, position the wheel until a maximum clearance of 5mm (.2 inches) is achieved, or the steering wheel is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)

__N/A Steering wheel was not repositioned.

__Original position achieved.

__Dummy contact. Clearance set at maximum of 5mm

Measured Clearance_____

__Dummy Contact. Steering wheel set at nearest detent position.

Steering wheel position ___ detent positions upward of original position.

(Original position is position zero)

X 20. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If the head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.2.1.9)

X Head Level Achieved. (Check all that apply)

X Head leveled using the adjustable seat back

__Head leveled using the neck bracket.

Head Angle ____0.2____ degrees

__Head Level NOT Achieved. (Check all that apply)

__Head adjusted using the adjustable seat back

__Head adjusted using the neck bracket.

Head Angle _____ degrees

X 21. Verify the pelvis is not interfering with the seat bight. (S16.3.2.1.9)

X No interference

__Pelvis moved forward the minimum amount so that it is not caught in the seat bight.

X 22. Verify the dummy abdomen is properly installed. (S16.3.2.1.9)

X Abdomen still seated properly into dummy

__Abdomen was adjusted because it was not seated properly into dummy

X 23. Head Angle

X N/A, neither the pelvis nor the abdomen were adjusted.

X 23.1 Head still level (Go to 24)

__23.2 Head level adjusted

__Head Level Achieved. (Check all that apply)

__Head leveled using the adjustable seat back

__Head leveled using the neck bracket.

Head Angle _____ degrees

__Head Level NOT Achieved. (Check all that apply)

__Head level adjusted using the adjustable seat back

__Head level adjusted using the neck bracket.

Head Angle _____ degrees

X 24. If the dummy torso contacts the steering wheel while performing step 20, reposition the steering wheel in the following order to eliminate contact. (S16.3.2.1.9)
X N/A, No dummy torso contact with the steering wheel.

__24.1 Adjust telescoping mechanism.
__N/A No telescoping adjustment.
__Adjustment performed (fill in appropriate change)
Steering wheel moved ____ detent positions in the forward direction.
Steering wheel moved ____ mm in the forward direction.

__24.2 Adjust tilt mechanism.
__N/A No tilt adjustment.
__No adjustment performed.
__Adjustment performed.
Steering wheel moved ____ detent positions Upward/Downward.
(circle one)
Steering wheel moved ____ degrees Upward/Downward

__24.3 Adjust Seat in the aft direction.
__No Adjustment performed.
__Seat moved aft ___ mm from original position.
__Seat moved aft ___ detent positions from the original position.

X 25. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees ± 2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level or because the dummy will have need major repositioning, adjust the pelvis as closely as possible to the angle range, but keep the head level. (S16.3.2.1.11)
X Pelvic angle set to 20.0 degrees ± 2.5 degrees.
__Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.
__Record the pelvic angle. ____20.5___ degrees

X 26. Check the dummy for contact with the interior after completing adjustments. (S16.3.2.1.12)
X No contact.
__Dummy in contact with interior.
__Seat moved aft ___ mm from the previous position.
__Seat moved aft ___ detent positions from the previous position.

X 27. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.2.1.12)
X N/A, Seat already at foremost position.
__Clearance unchanged. No adjustments required.
__Additional clearance available
__Seat moved Forward ___ mm from the previous position.
__Seat moved Forward ___ detent positions from the previous position.

X 28. Driver's foot positioning, right foot. Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 29 otherwise, proceed to step 30. (S16.3.2.2.1)

X 29. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 29.6 shall be completed in all cases. (S16.3.2.2.1(a))

X 29.1 With the rear of the heel contacting the floor pan, move the foot forward until pedal contact occurs or the foot is at the full forward position.

__29.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position.

__29.3 Extend the leg, allowing the heel to lose contact with the floor until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

__29.4 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

__29.5 Align the centerline of the foot with the vertical-longitudinal plane passing through the center of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

X 29.6 Record foot position

X Pedal Contact achieved. Contact occurred at step __29.1___.

X Heel contacts floor pan

__Heel set _____ mm from floor pan.

__ Pedal Contact not achieved. Heel set _____ mm from the floor pan.

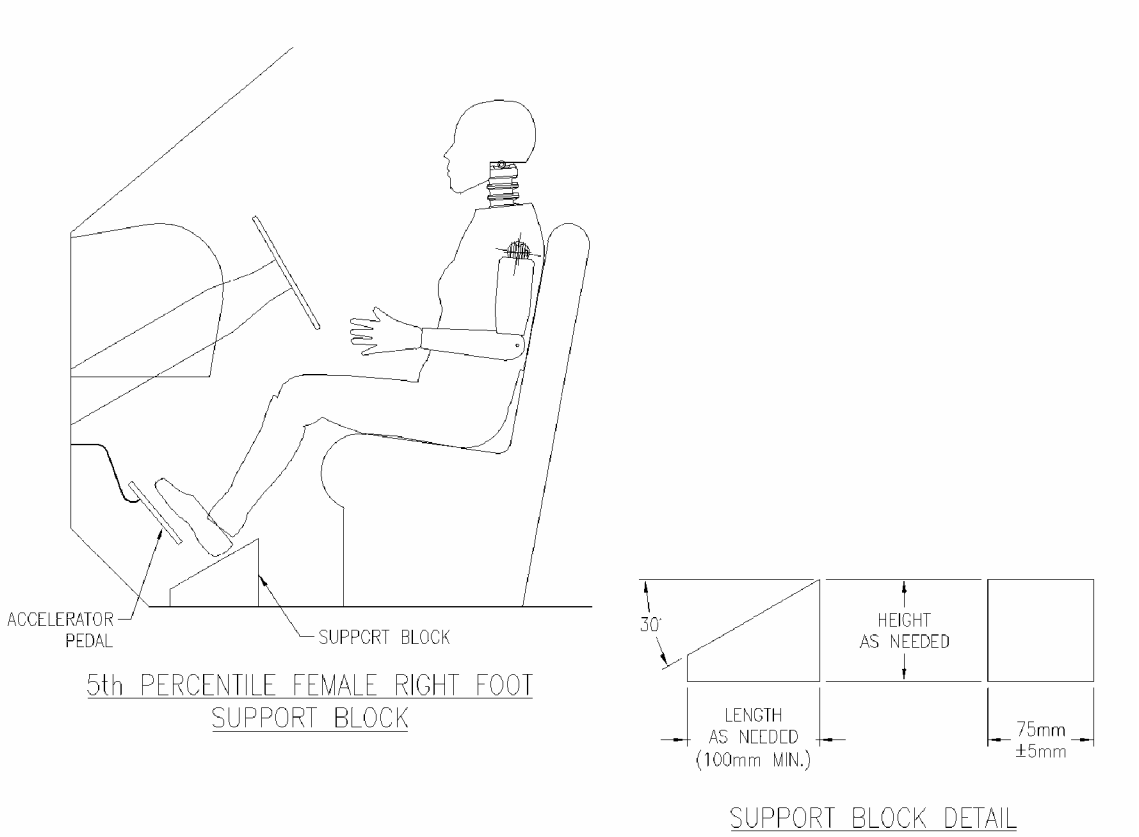


FIGURE G1

__30. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 30.5 shall be completed in all cases.

__30.1 Extend the leg until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.1(b) & S16.3.2.2.3)

__30.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.1(b) & S16.3.2.2.3)

__N/A No pedal adjustment

__30.3 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.2 & S16.3.2.2.3)

__30.4 Align the centerline of the foot in the same horizontal plane as the centerline of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

__30.5 Record foot position

__Pedal Contact achieved. Contact occurred at step _____.

__ Heel set _____ mm from floor pan.

__Pedal Contact not achieved. Heel set _____ mm from the floor pan.

X 31. Driver's foot positioning, left foot.

X 31.1 Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 31.2, otherwise position the leg as perpendicular to the thigh as possible with the foot parallel to the floor pan. (S16.2.2.6)

X 31.2 Place the foot on the toe board with the heel resting on the floor pan as close to the intersection of the floor pan and the toe board as possible. Adjust the angle of the foot if necessary to contact the toe board. If the foot will not contact the toe board, set the foot perpendicular to the leg, and set the heel on the floor pan as far forward as possible. Avoid contact with the brake pedal, clutch pedal, wheel well projection, and footrest. To avoid this contact use the following three manipulations in the order listed, with each subsequent option incorporating the previous, until contact is avoided: rotate the foot about the lower leg (abduction/adduction), plantar flex the foot, rotate the leg outboard about the hip . Movement should be the minimum amount necessary. If it is not possible to avoid all foot contact, give priority to avoiding brake or clutch pedal contact. (S16.2.2.4 & S16.2.2.5 & S16.2.2.7)

X No contact

__Foot rotated about the leg (abduction/adduction)

__Foot rotated about the leg, and foot plantar flexed

__Foot rotated about the leg, foot plantar flexed, and the leg rotated about the hip.

X 31.3 Record foot position.

__Heel does not contact floor pan.

__Heel on floor pan and foot on toe board.

X Heel on floor pan and foot not on toe board.

X 32. Driver arm/hand positioning.

X 32.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

X 32.2 Place the palms of the dummy in contact with the outer part of the steering wheel rim at its horizontal centerline with the thumbs over the steering wheel rim. (S16.3.2.3.2)

X 32.3 If it is not possible to position the thumbs inside the steering wheel rim at its horizontal centerline, then position them above and as close to the horizontal centerline of the steering wheel rim as possible. (S16.3.2.3.3)

X 32.4 Lightly tape the hands to the steering wheel rim so that if the hand of the test dummy is pushed upward by a force of not less than 9 N (2 lb) and not more than 22 N (5 lb), the tape releases the hand from the steering wheel rim. S16.3.2.3.4

X 33. Adjustable head restraints

__N/A, there is no head restraint adjustment

__33.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 34.

__33.2 Adjust each head restraint vertically so that the mid-horizontal plane determined in Data Sheet 14.1 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

X 33.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)

__N/A midpoint position attained in previous step

X Headrest set at nearest detent below the head CG

__33.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)

__34. Driver and passenger manual belt adjustment (for tests conducted with a belted dummy). (S16.3.5) UNBELTED TEST

__34.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female. (S16.3.5.1) **This information will be supplied by the COTR.**

Manufacturer's specified position _____

Actual Position_____

__34.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

__34.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

__34.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

I certify that I have read and performed each instruction.

Signature: _____ Date: 4/19/06

APPENDIX G

DUMMY POSITIONING PROCEDURES
FOR 5th% PASSENGER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/19/06
Test Technician: Eric Peschman

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

(Check this item ONLY if it applies to this vehicle.)

__The passenger seat adjustments are controlled by the adjustments made to the driver's seat. Therefore, positioning of the passenger dummy is made simultaneously with the driver dummy. Adjustments made to the seat to position the driver will over ride any adjustments that would normally be made to position the passenger. (S16.2.10.3)

X 1. Place the SCRP in the full rearward, mid-height position, and mid-seat cushion angle, determined during the completion of Data Sheet 14.1. (S16.3.3.1.1)

X 2. Fully recline the seat back. (S16.3.3.1.2)
__ N/A seat back not adjustable.

X 3. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.3.1.2)

X 4. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion marking that was determined in Data Sheet 14.1. (S16.3.3.1.3 and S16.3.3.1.4)

X 5. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.3.1.5)

X 6. Set the angle between the legs and the thighs to 120 degrees. (S16.3.3.1.6)

X 7. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches). Center the knee separation with respect to the longitudinal seat cushion marking that was determined Data Sheet 14.1. (S16.3.3.1.6)
Record Knee Separation ____170___

X 8. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.3.1.6)
__Pelvis contacted seat back.
X Calves contacted seat cushion.

X 9. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side-to-side three times. (S16.3.3.1.7)

X 10. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.3.1.8)

X 11. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14.1 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.3.1.8)

X Foremost, mid-height position and the seat cushion mid-angle reached

__Dummy contact. Clearance set at maximum of 5mm

Measured Clearance_____

__Dummy Contact. Seat set at nearest detent position.

Seat position ___ detent positions rearward of foremost (foremost is position zero)

X 12. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, adjust the head as closely as possible to the ± 0.5 degree range. (S16.3.3.1.9 and S16.3.3.1.10)

(Check All That Apply)

__Seat back not adjustable

__Seat back not independent of driver side seat back

X Head Level Achieved. (Check all that apply)

X Head leveled using the adjustable seat back

__Head leveled using the neck bracket.

Head Angle ____0.3____ degrees

__Head Level NOT Achieved. (Check all that apply)

__ Head adjusted using the adjustable seat back

__ Head adjusted using the neck bracket.

Head Angle _____ degrees

X 13. Verify the pelvis is not interfering with the seat bight. (S16.3.3.1.9)

X No interference

__Pelvis moved forward the minimum amount so that it is not caught in the seat bight.

X 14. Verify the dummy abdomen is properly installed. (S16.3.3.1.9)

X Abdomen still seated properly into dummy

__Abdomen was adjusted because it was not seated properly into dummy

X 15. Head Angle

X N/A, neither the pelvis nor the abdomen were adjusted.

X 15.1 Head still level (Go to 16)

__15.2 Head level adjusted

__Head Level Achieved. (Check all that apply)

__Head leveled using the adjustable seat back

__Head leveled using the neck bracket.

Head Angle _____ degrees

__Head Level NOT Achieved. (Check all that apply)

__Head adjusted using the adjustable seat back

__Head adjusted using the neck bracket.

Head Angle _____ degrees

_X_ 16. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees ± 2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level or because the dummy will have need major repositioning, adjust the pelvis as closely as possible to the angle range, but keep the head level.

X Pelvic angle set to 20.0 degrees ± 2.5 degrees.

__Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.

X Record the pelvic angle. ____19.8____ degrees

_X_ 17. Check the dummy for contact with the interior after completing adjustments.

X No contact.

__Dummy in contact with interior.

__Seat moved aft ___ mm from the previous position.

__Seat moved aft ___ detent positions from the previous position.

_X_ 18. Verify the transverse instrument platform of the dummy head is level +/- 0.5 degrees. Use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.3.1.9, S16.3.3.1.10, and S16.3.3.1.11)

X Head Level Achieved

Head Angle ____0.3_____ degrees

__Head Level NOT Achieved.

Head Angle _____ degrees

_X_ 19. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.3.1.12)

__N/A Bench Seat

X N/A Seat already at full forward position.

__Clearance unchanged. No adjustments required.

__Additional clearance available

__Seat moved Forward ___ mm from the previous position.

__Seat moved Forward ___ detent positions from the previous position.

__Seat moved Forward, Full Forward position reached.

_X_ 20. Passenger foot positioning. (Indicate final position achieved) (S16.3.3.2)

__20.1 Place feet flat on the toe board; OR (S16.3.3.2.1)

_X_ 20.2 If the feet cannot be placed flat on the toe board, set the feet perpendicular to the lower leg, and rest the heel as far forward on the floor pan as possible; OR (S16.3.3.2.2)

__20.3 If the heels do not touch the floor pan, set the legs as perpendicular to the thighs as possible and set the feet parallel to the floor pan. (S16.3.3.2.2)

X 21. Passenger arm/hand positioning. (S16.3.3.3)

X 21.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.3.3.1)

X 21.2 Place the palms of the dummy in contact with the outer part of the thighs (S16.3.3.3.2)

X 21.3 Place the little fingers in contact with the seat cushion. (S16.3.3.3.3)

X 22. Adjustable head restraints (S16.3.4)
__N/A, there is no head restraint adjustment

__22.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 23.

__22.2 Adjust each head restraint vertically so that the horizontal plane determined in Data Sheet 14.1 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

X 22.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)
__N/A midpoint position attained in previous step
X Headrest set at nearest detent below the head CG

X 22.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)

X 23. Manual belt adjustment (for tests conducted with a belted dummy) S16.3.5
X N/A, Unbelted test

__23.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female. **This information will be supplied by the COTR.** (S16.3.5.1
Manufacturer's specified position _____
Actual Position_____

__23.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

__23.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

__23.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

I certify that I have read and performed each instruction.

Signature: _____ Date: 4/19/06

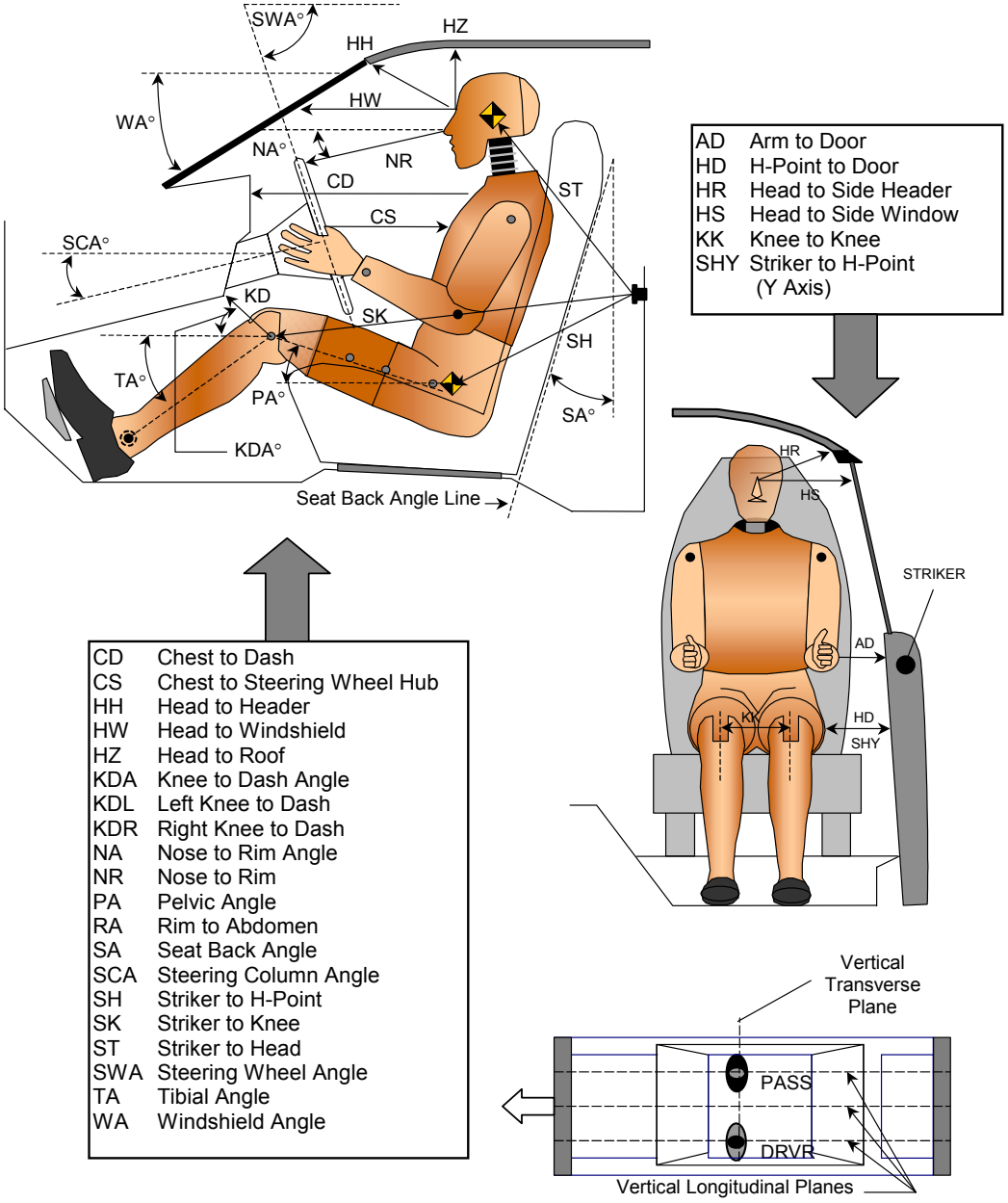
DATA SHEET 37

DUMMY MEASUREMENTS

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Wayne Dahlke

NHTSA No.: C50510
Test Date: 4/19/06

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



DATA SHEET 37

DUMMY MEASUREMENTS

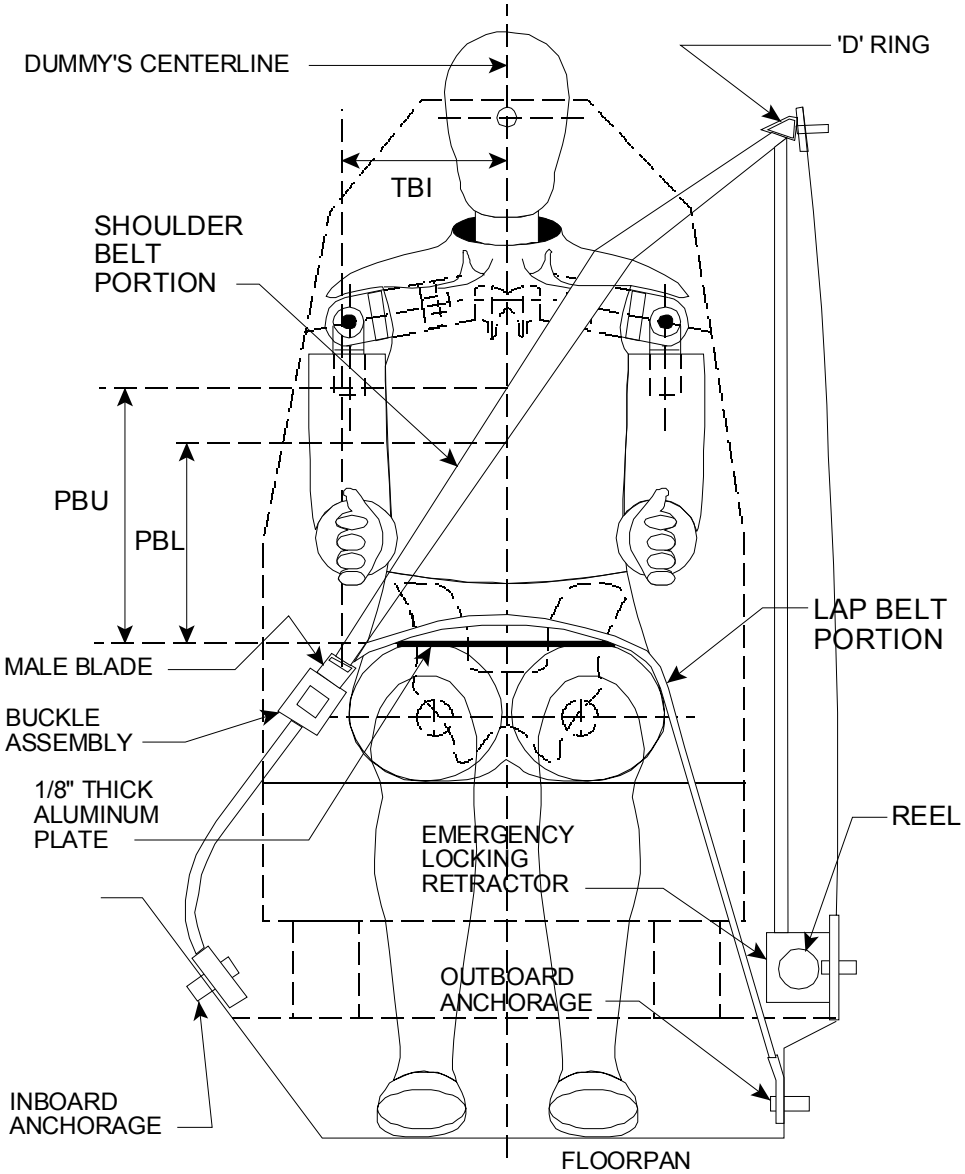
Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Wayne Dahlke

NHTSA No.: C50510
Test Date: 4/19/06

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver SN 505		Passenger SN 511	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		30.9		
SWA	Steering Wheel Angle		62.4		
SCA	Steering Column Angle		28.9		
SA	Seat Back Angle (On Headrest)		5.2		5.6
HZ	Head to Roof (Z)	178		181	
HH	Head to Header	272	46.3	264	51.3
HW	Head to Windshield	501	0.0	480	0.0
HR	Head to Side Header (Y)	242		232	
NR	Nose to Rim	276	13.5		
CD	Chest to Dash	413		391	
CS	Chest to Steering Hub	187	0.7		
RA	Rim to Abdomen	42	0.0		
KDL	Left Knee to Dash	56	44.5	81	
KDR	Right Knee to Dash	86		76	27.7
PA	Pelvic Angle		20.5		19.8
TA	Tibia Angle		57.7		60.5
KK	Knee to Knee (Y)	290		226	
SK	Striker to Knee	696	93.2	687	92.9
ST	Striker to Head	550	21.2	570	27.0
SH	Striker to H-Point	376	95.6	370	102.1
SHY	Striker to H-Point (Y)	289		289	
HS	Head to Side Window	329		331	
HD	H-Point to Door (Y)	203		199	
AD	Arm to Door (Y)	180		163	
AA	Ankle to Ankle	270		167	

SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	N/A	N/A
PBL - To surface of reference to belt lower edge	mm	N/A	N/A

DATA SHEET 38

CRASH TEST

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Jordan Haynes

NHTSA No.: C50510
Test Date: 4/19/06

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

X 1. Vehicle underbody painted
X 2. The speed measuring devices are in place and functioning.
X 3. The speed measuring devices are 1.0 m from the barrier (spec. 1.5m) and 30 cm from the barrier (spec. is 30 cm)
X 4. Convertible top is in the closed position.
X N/A, not a convertible
X 5. Instrumentation and wires are placed so the motion of the dummies during impact is not affected.
X 6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information.

210 kpa front left tire	210 kpa specified on tire placard or in owner information
210 kpa front right tire	210 kpa specified on tire placard or in owner information
210 kpa rear left tire	210 kpa specified on tire placard or in owner information
210 kpa rear right tire	210 kpa specified on tire placard or in owner information

X 7. Time zero contacts on barrier in place.
X 8. Pre test zero and shunt calibration adjustments performed and recorded
X 9. Dummy temperature meets requirements of section 12.2 of the test procedure.
X 10. Vehicle hood closed and latched
X 11. Transmission placed in neutral
X 12. Parking brake off
X 13. Ignition in the ON position
X 14. Doors closed and latched but not locked
X 15. Posttest zero and shunt calibration checks performed and recorded
X 16. Actual test speed 39.8 kmph
X 17. Vehicle rebound from the barrier 322 cm
X 18. Describe whether the doors open after the test and what method is used to open the doors.

X Left Front Door: Door remained closed and latched; Door opened without tools
X Right Front Door: Door remained closed and latched; Door opened without tools
X Left Rear Door: Door remained closed and latched; Door opened without tools
X Right Rear Door: Door remained closed and latched; Door opened without tools

[X] 19. Describe the contact points of the dummy with the interior of the vehicle.

[X] Driver Dummy: Head to Air Bag, Visor, and Headrest; Knees to Knee Bolsters

[X] Passenger Dummy: Head to Air Bag; Knees to Glove Box

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jordan Hayes Date: 4/19/06

DATA SHEET NO. 40

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/19/06

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

Vehicle Year/Make/Model/Body Style:	2005 Hyundai Santa Fe
VIN:	KM8SC13EX5U890970
Wheelbase:	2630 mm
Build Date:	10/06/04
Vehicle Size Category:	3
Test Weight:	1955.4 kg
Front Overhang:	888 mm
Overall Width:	1830 mm
Overall Length Center:	4459 mm

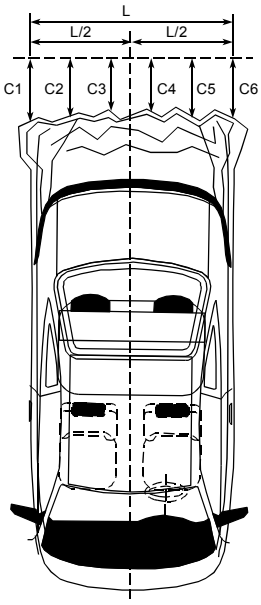
Accelerometer Data	
Location:	As per measurements on Data Sheet 33
Linearity:	>99.9%

Integration Algorithm:	Trapezoidal
Vehicle Impact Speed:	39.8 kmph
Time of Separation:	101.7 ms
Velocity Change:	46.4 kmph

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
Midpoint of Damage: Vehicle Longitudinal Centerline
Damage Region Length (mm): 1360
Impact Mode: Frontal Barrier

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4373	4128	245
C2	Crush zone 2 at left side	mm	4434	4140	294
C3	Crush zone 3 at left side	mm	4457	4149	308
C4	Crush zone 4 at right side	mm	4457	4162	295
C5	Crush zone 5 at right side	mm	4434	4144	290
C6	Crush zone 6 at right side	mm	4373	4180	193



REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Yosinski

Date: 4/19/06

DATA SHEET 41

WINDSHIELD MOUNTING (FMVSS 212)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/19/06

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

1. Pre-Crash

[X] 1.1 Describe from visual inspection how the windshield is mounted and describe any trim material.

Retained with glue
Rubber and plastic trim

[X] 1.2 Mark the longitudinal centerline of the windshield

[X] 1.3 Measure pre-crash A, B, and C for the left side and record in the chart below.

[X] 1.4 Measure pre-crash C, D, and E for the right side and record in the chart below.

[X] 1.5 Measure from the edge of the retainer or molding to the edge of the windshield.

[X] Dimension G (mm): 19 mm

2. Post Crash

[X] 2.1 Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?

[X] No – Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.

[ ] Yes, go to 2.2

[ ] 2.2 Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.

[ ] 2.3 Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body.

[ ] 2.4 Calculate and record the percent retention for the right and left side of the windshield.

[ ] 2.5 Is total right side percent retention less than 75%?

[ ] Yes, Fail

[ ] No, Pass

[ ] 2.6 Is total left side percent retention less than 75%?

[ ] Yes, Fail

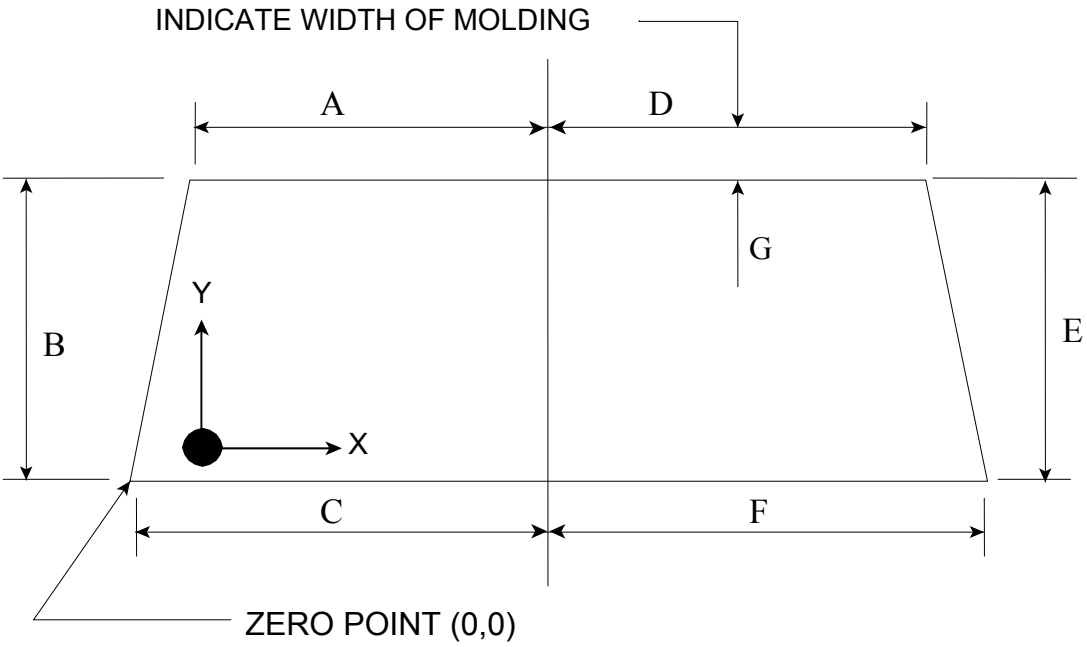
[ ] No, Pass

WINDSHIELD RETENTION MEASUREMENTS

	Dimension	Pre-Crash (mm)	Post-Crash (mm)	Percent Retention (Post-Test ÷ Pre-Crash)
Left Side	A	523	523	100%
	B	816	816	100%
	C	785	785	100%
	Total	2124	2124	100%
Right Side	D	523	523	100%
	E	816	816	100%
	F	785	785	100%
	Total	2124	2124	100%

Indicate area of mounting failure. NONE

FRONT VIEW OF WINDSHIELD



REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 4/19/06

DATA SHEET 42

WINDSHIELD ZONE INTRUSION (FMVSS 219)

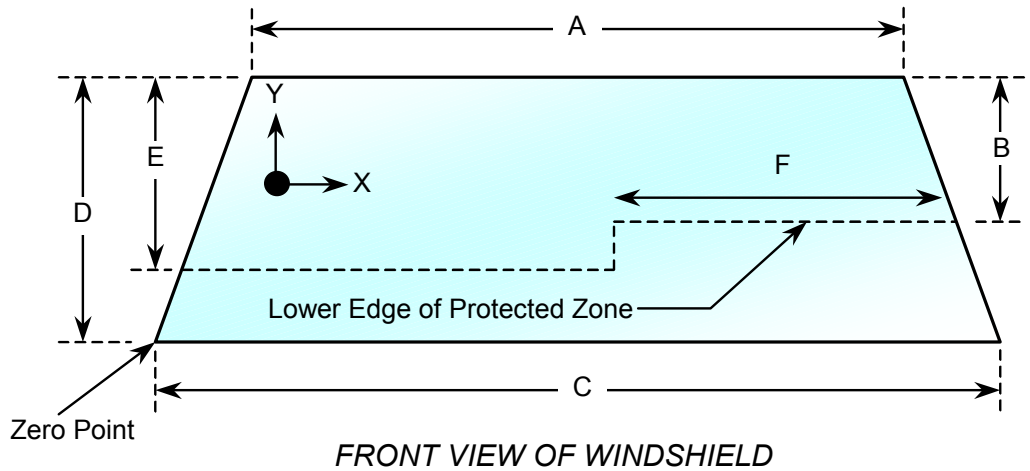
Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C50510
Test Date: 4/19/06

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th Female	__ 50th Male	
PASSENGER DUMMY:	_X_ 5th Female	__ 50th Male	

X	1.	Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))
X	2.	Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))
X	3.	From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))
X	4.	Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3
X	5.	After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.



FRONT VIEW OF WINDSHIELD

WINDSHIELD DIMENSIONS

Item	Units	Value
A	mm	1045
B	mm	475
C	mm	1570
D	mm	816
E	mm	493
F	mm	534

AREA OF PROTECTED ZONE FAILURES:

B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

X	Y
NONE	

C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

X	Y
NONE	

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski Date: 4/19/06

DATA SHEET 43

FUEL SYSTEM INTEGRITY (FMVSS 301)

Test Vehicle: 2005 Hyundai Santa Fe
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C50510
Test Date: 4/19/06

TYPE OF IMPACT:	25 mph Unbelted Flat Frontal

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0.0 grams
(Maximum Allowable = 28 grams)

B. For the 5 minute period after motion ceases: 0.0 grams
(Maximum Allowable = 142 grams)

C. For the following 25 minutes: 0.0 grams
(Maximum Allowable = 28 grams/minute)

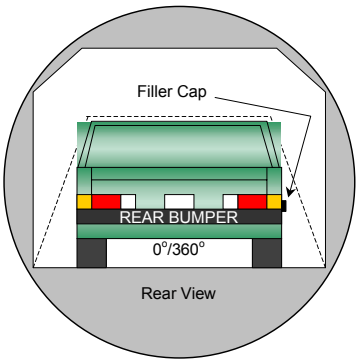
D. Spillage: NONE

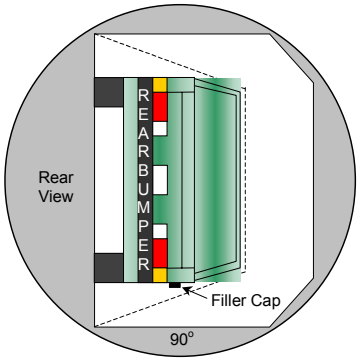
REMARKS: NO SPILLAGE

DATA SHEET NO. 43

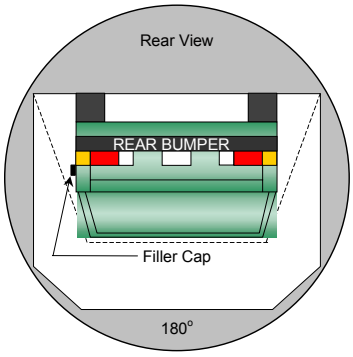
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2005 Hyundai Santa Fe NHTSA No.: C50510
Test Program: FMVSS 208 Compliance Test Date: 4/19/06

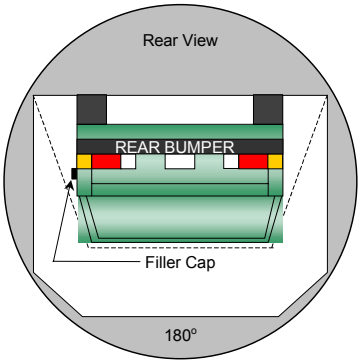




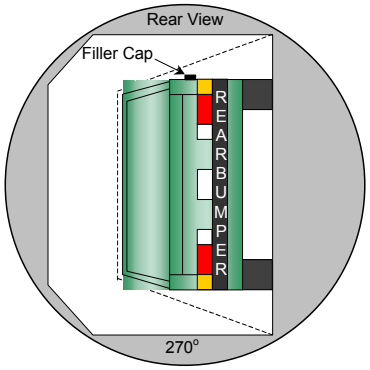
0° to 90°

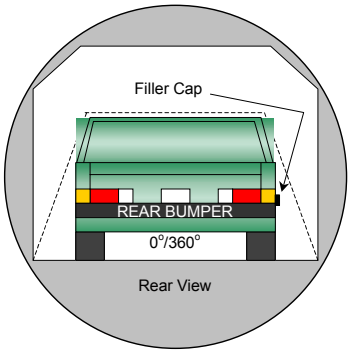


90° to 180°



180° to 270°





270° to 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: None

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (grams)
0° to 90°	170	300	0.0
90° to 180°	149	300	0.0
180° to 270°	135	300	0.0
270° to 360°	148	300	0.0

APPENDIX A

CRASH TEST DATA

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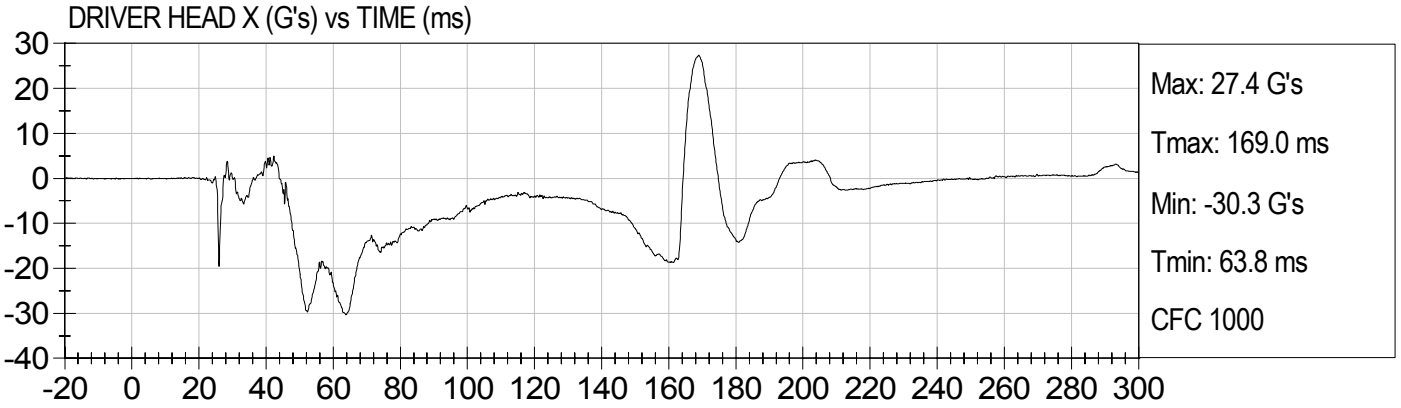
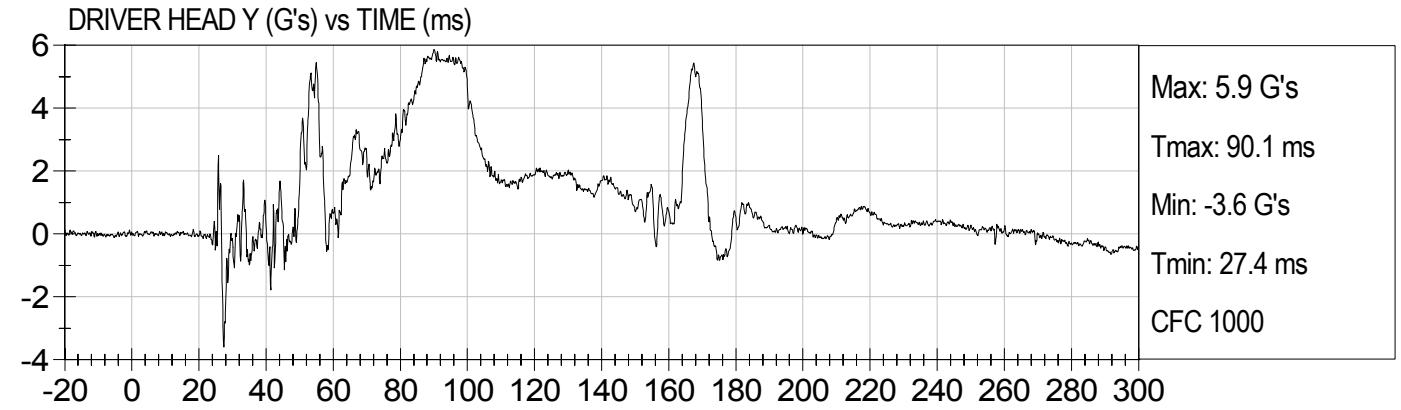
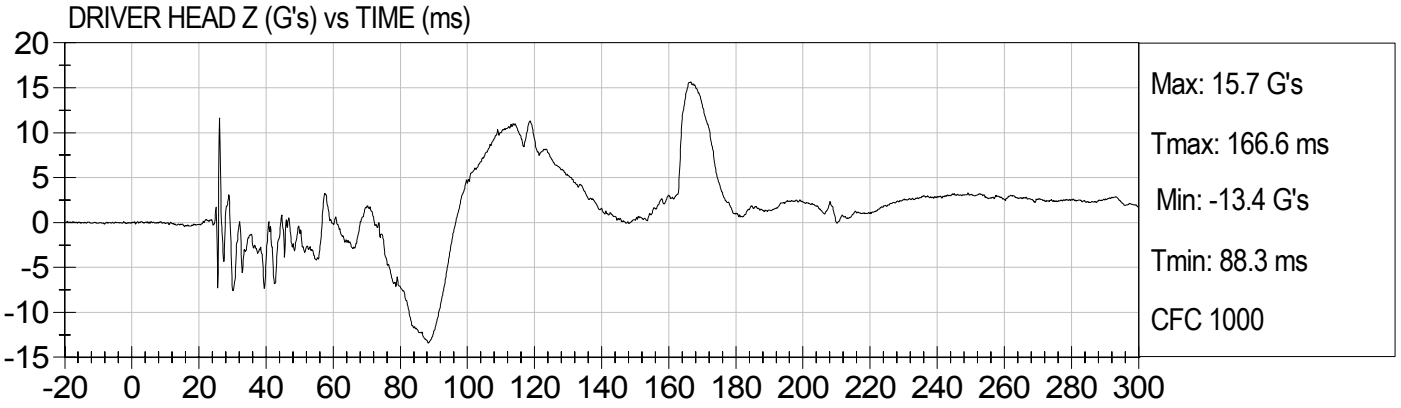
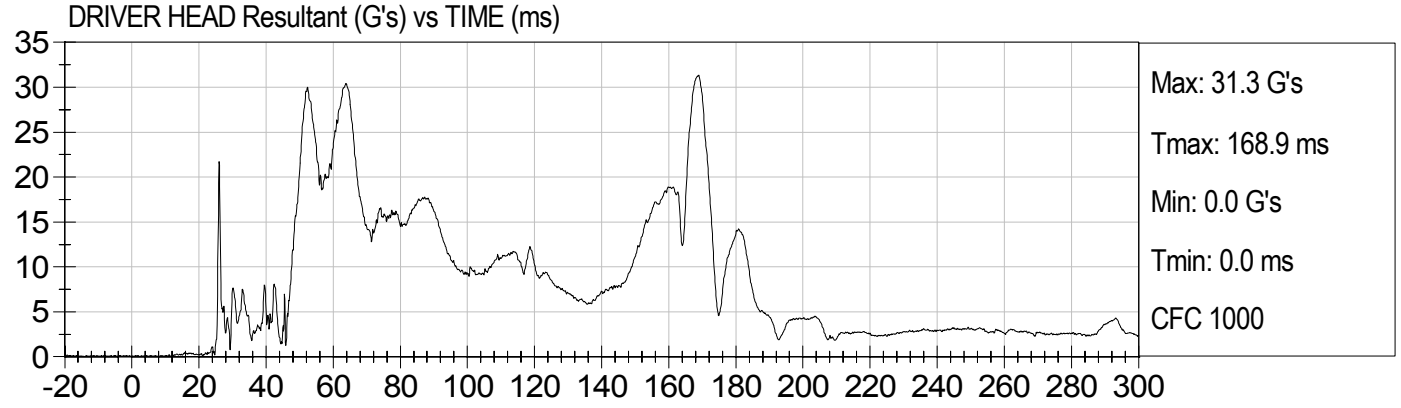
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)



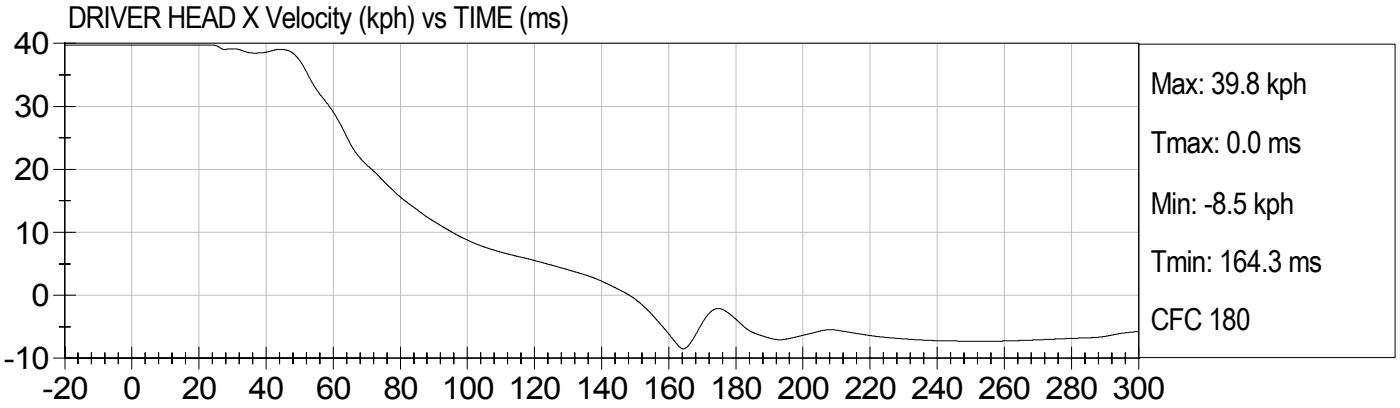


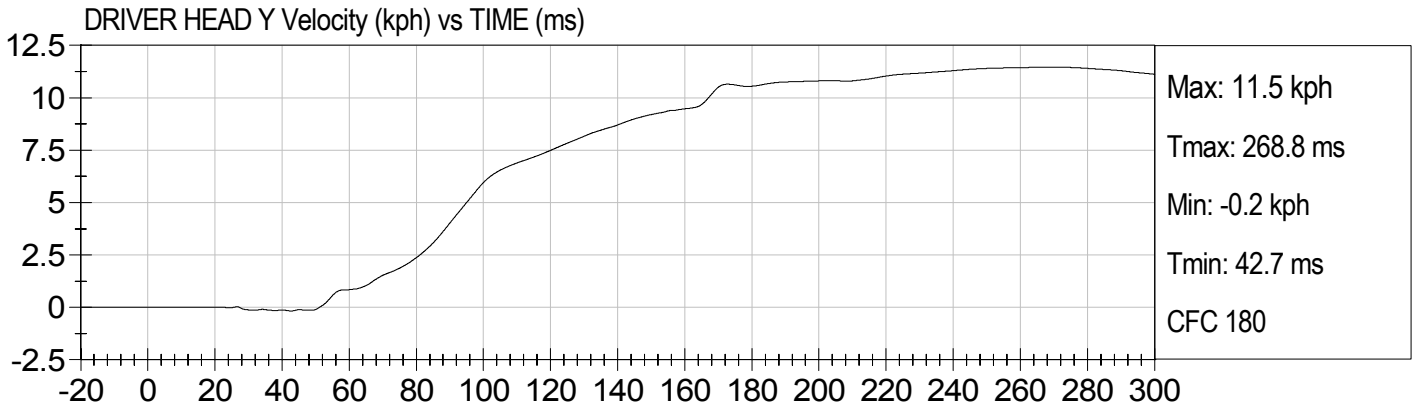


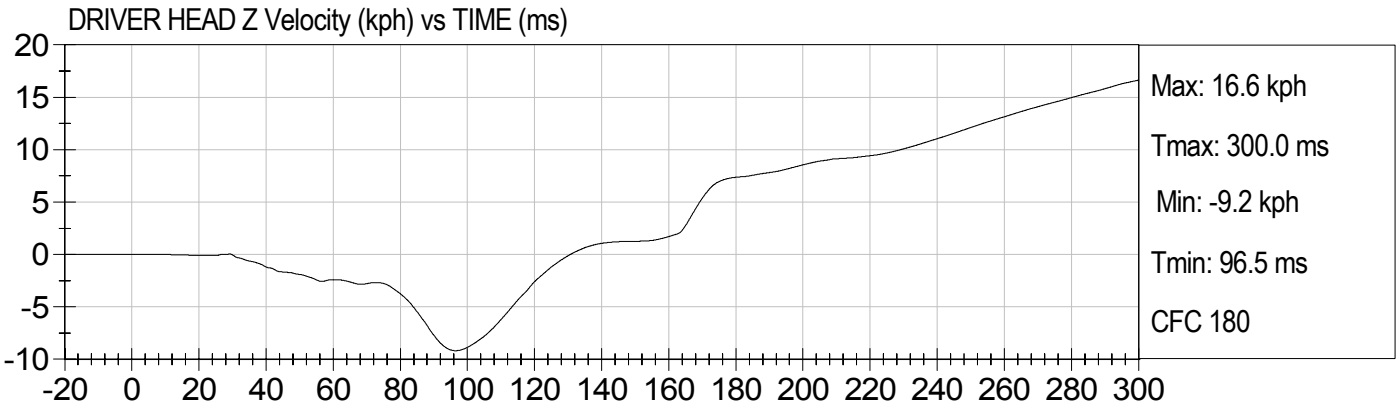


25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)



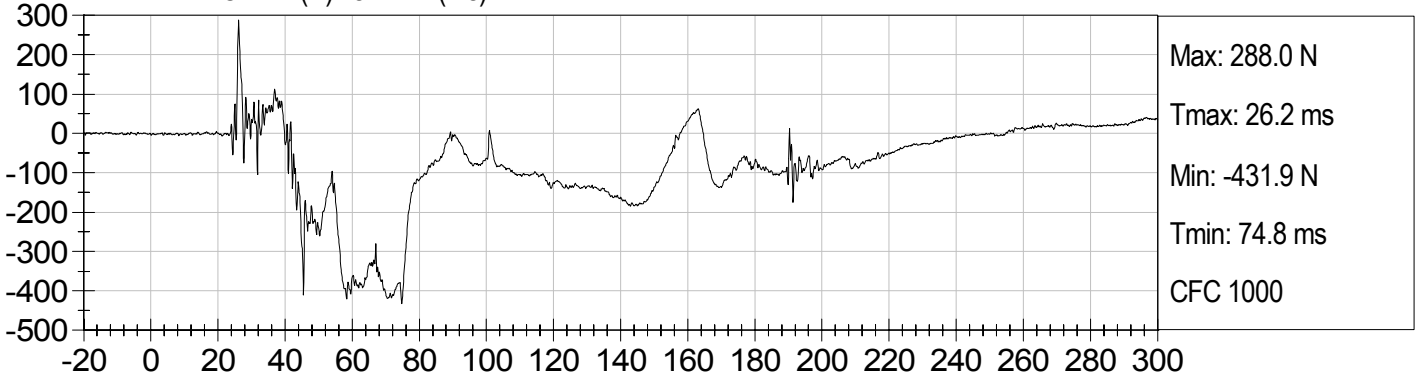




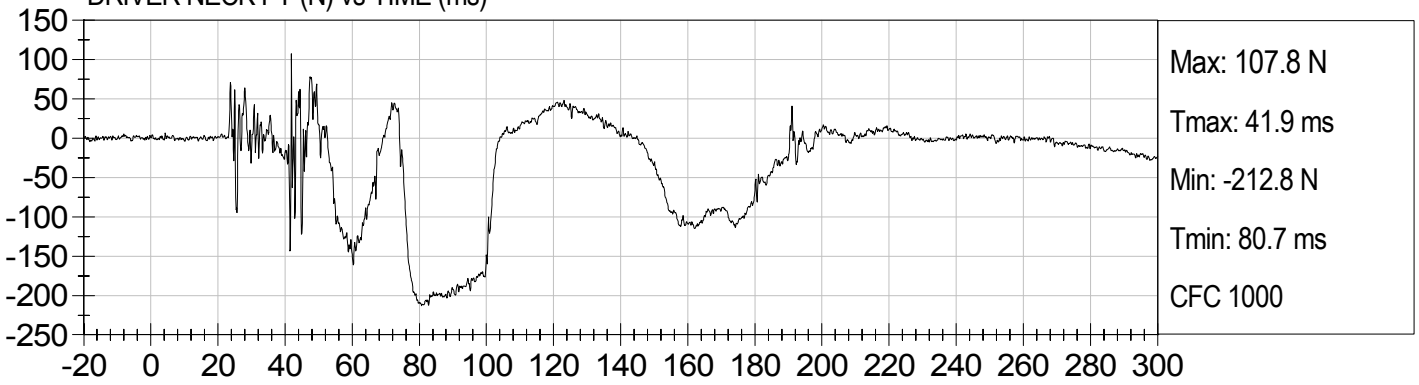
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

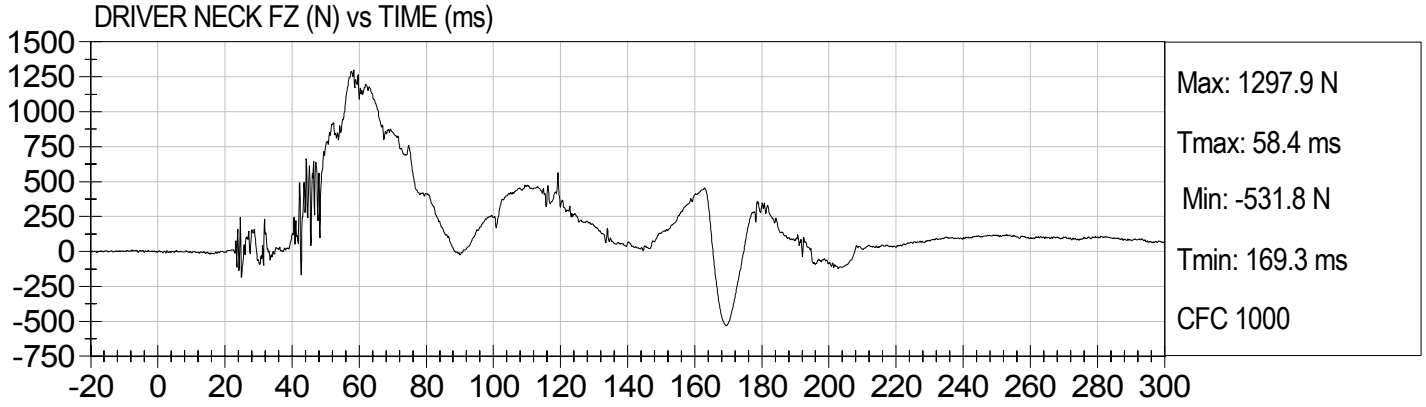
DRIVER NECK FX (N) vs TIME (ms)



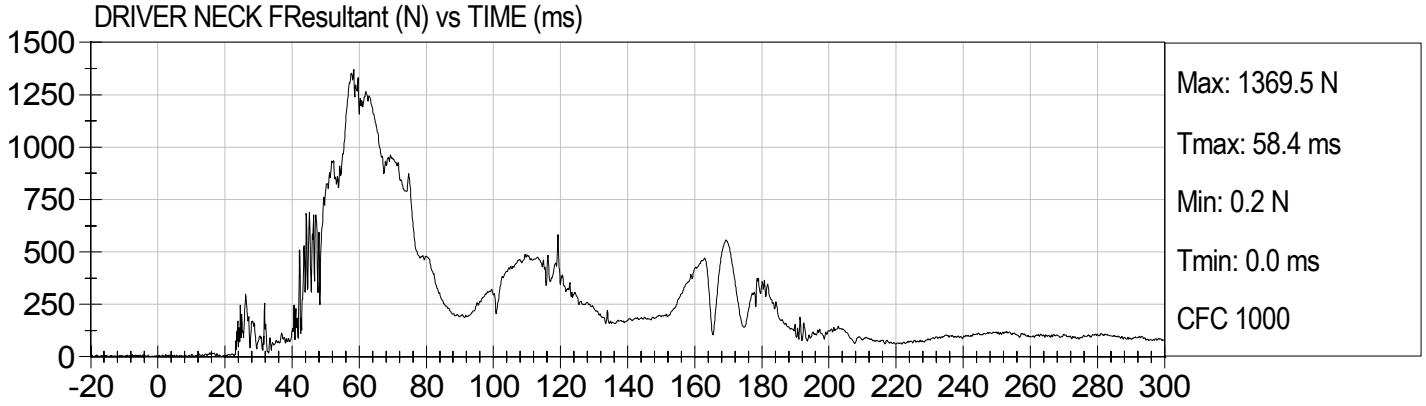
DRIVER NECK FY (N) vs TIME (ms)



DRIVER NECK FZ (N) vs TIME (ms)



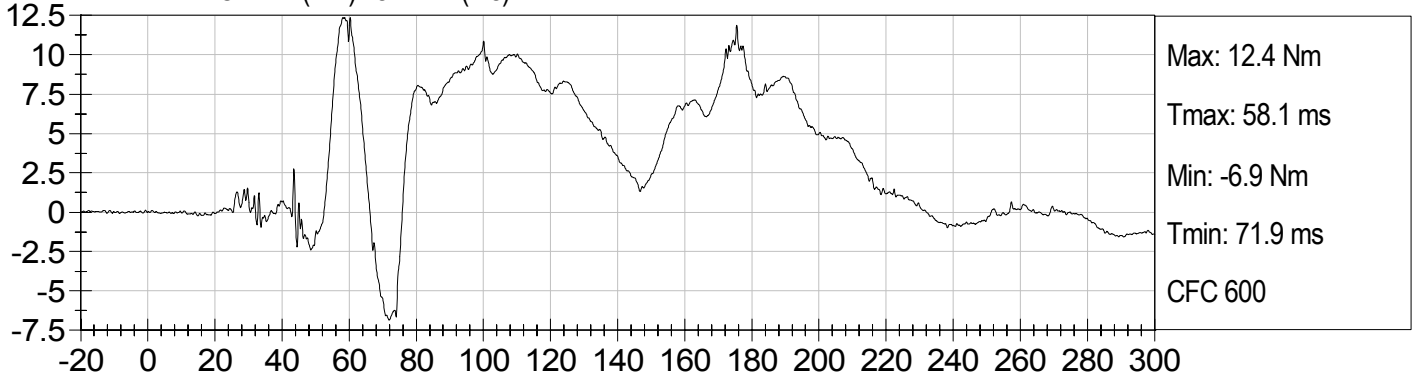
DRIVER NECK FResultant (N) vs TIME (ms)



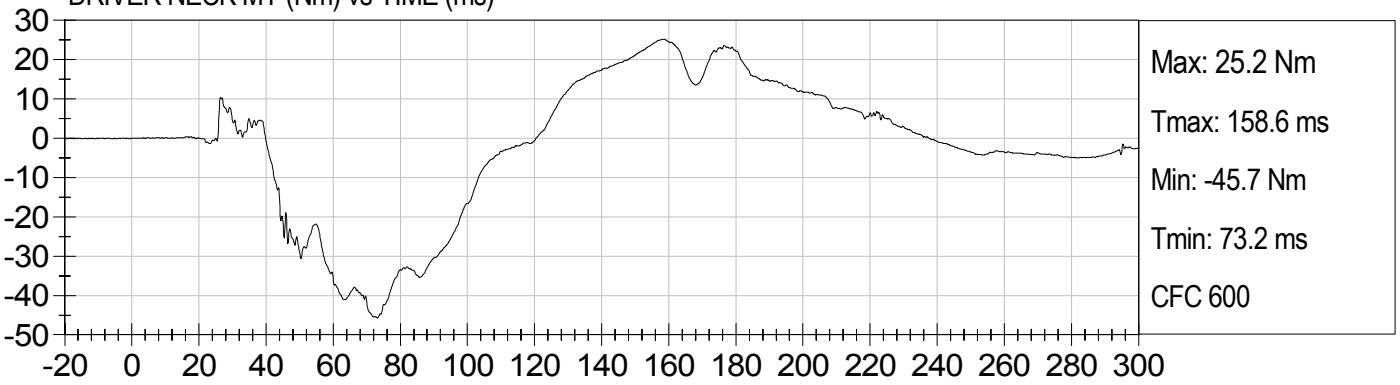
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

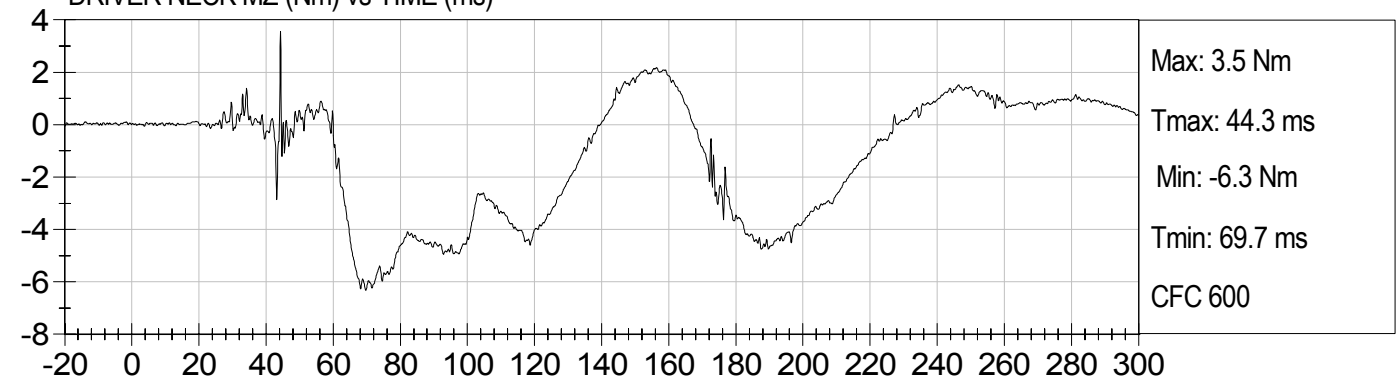
DRIVER NECK MX (Nm) vs TIME (ms)



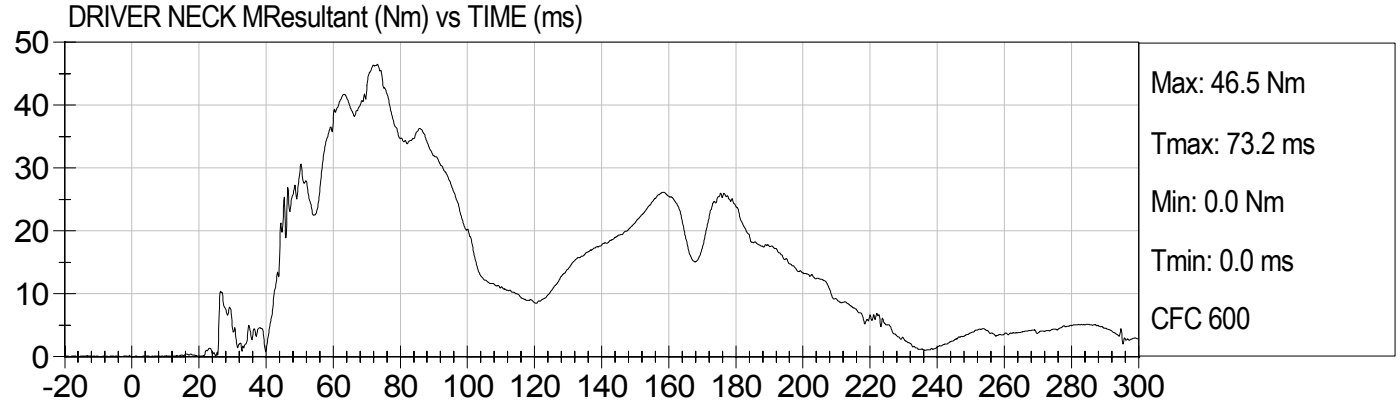
DRIVER NECK MY (Nm) vs TIME (ms)



DRIVER NECK MZ (Nm) vs TIME (ms)



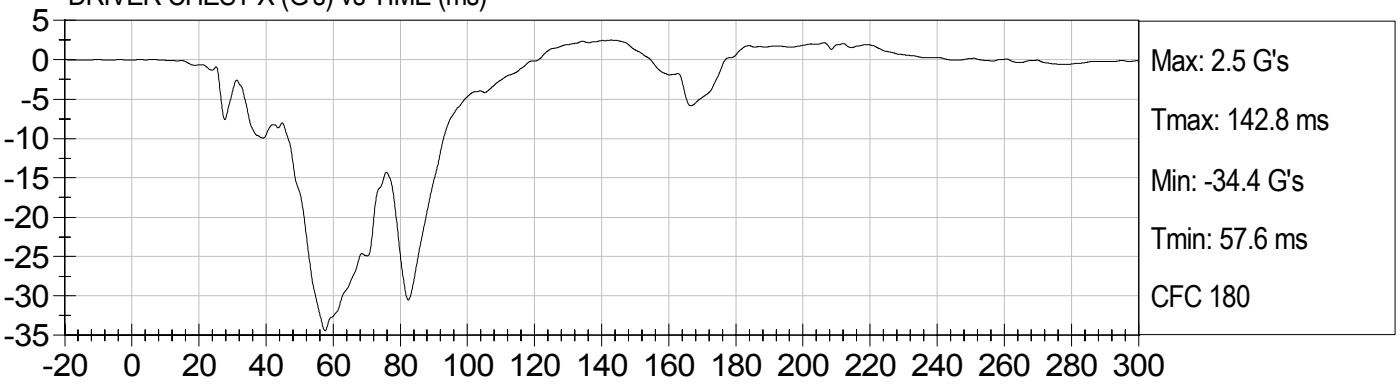
DRIVER NECK MResultant (Nm) vs TIME (ms)



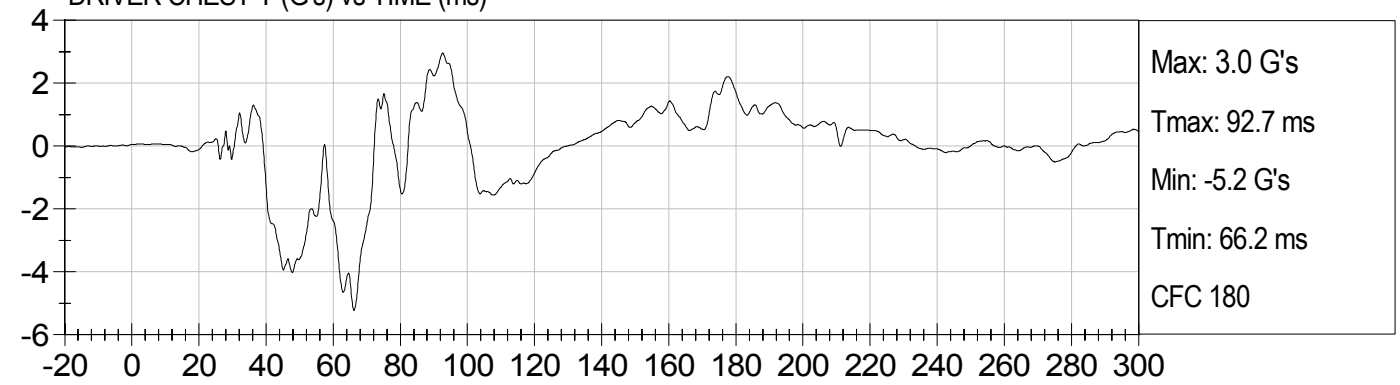
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

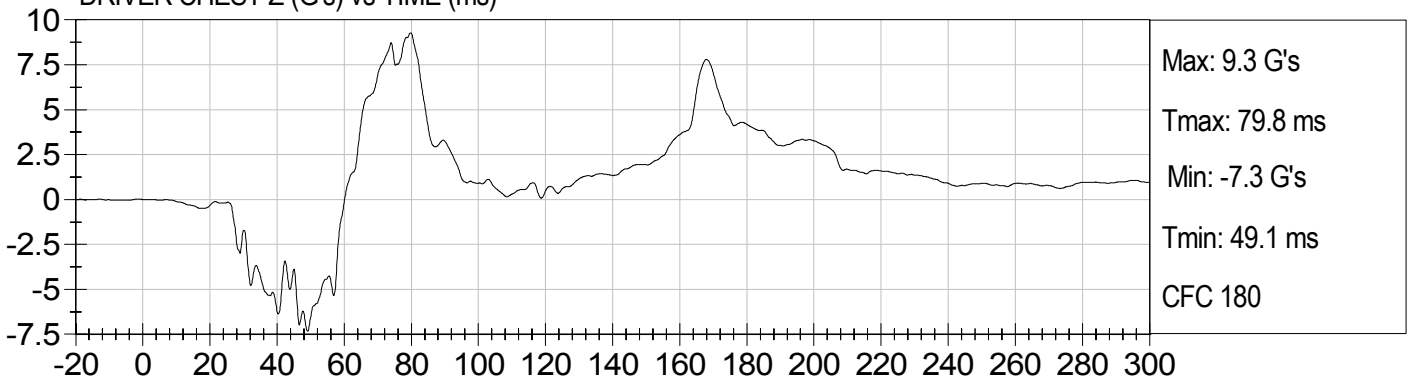
DRIVER CHEST X (G's) vs TIME (ms)



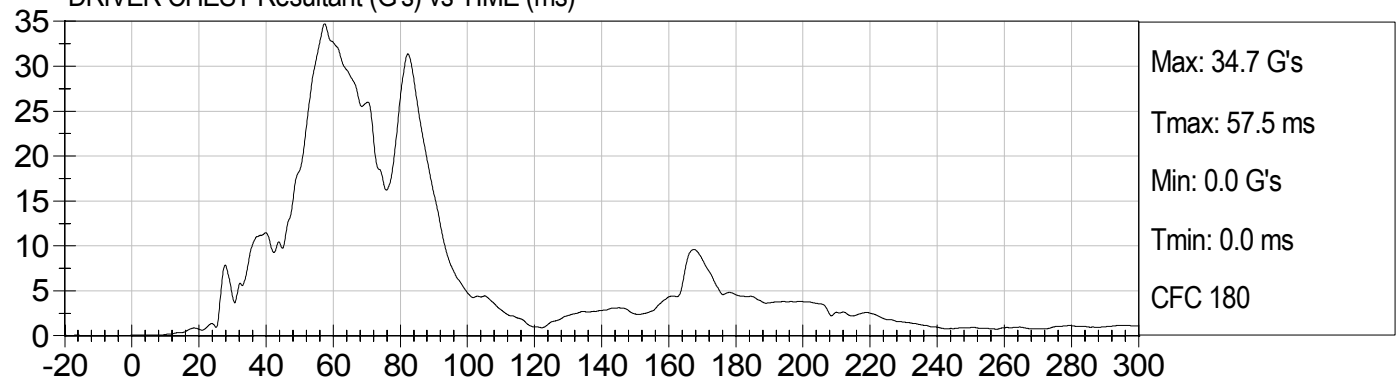
DRIVER CHEST Y (G's) vs TIME (ms)



DRIVER CHEST Z (G's) vs TIME (ms)



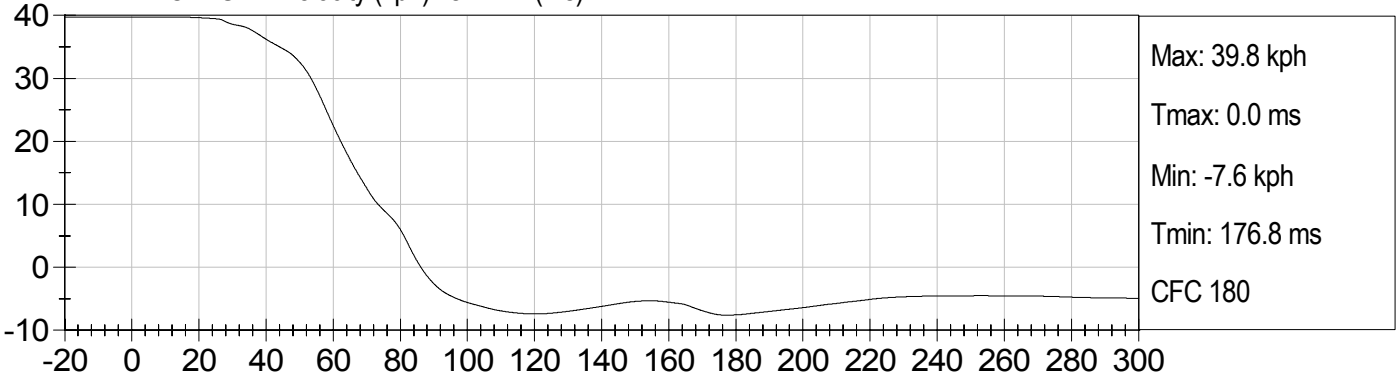
DRIVER CHEST Resultant (G's) vs TIME (ms)



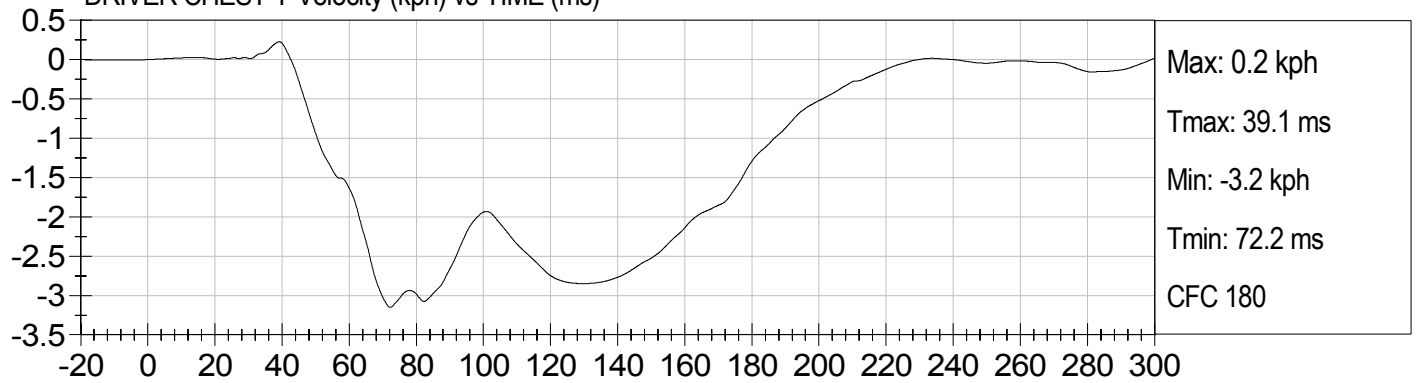
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

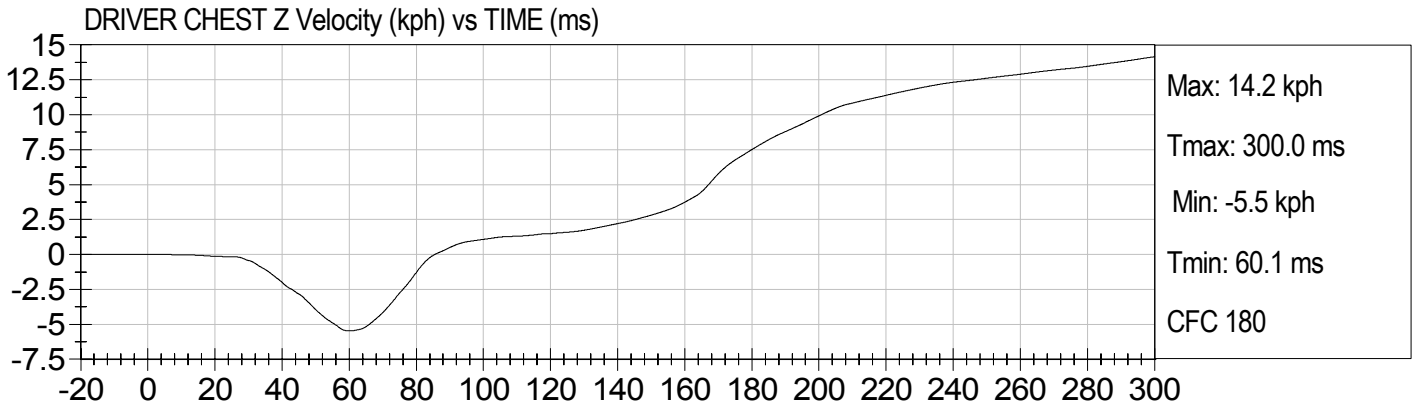
DRIVER CHEST X Velocity (kph) vs TIME (ms)



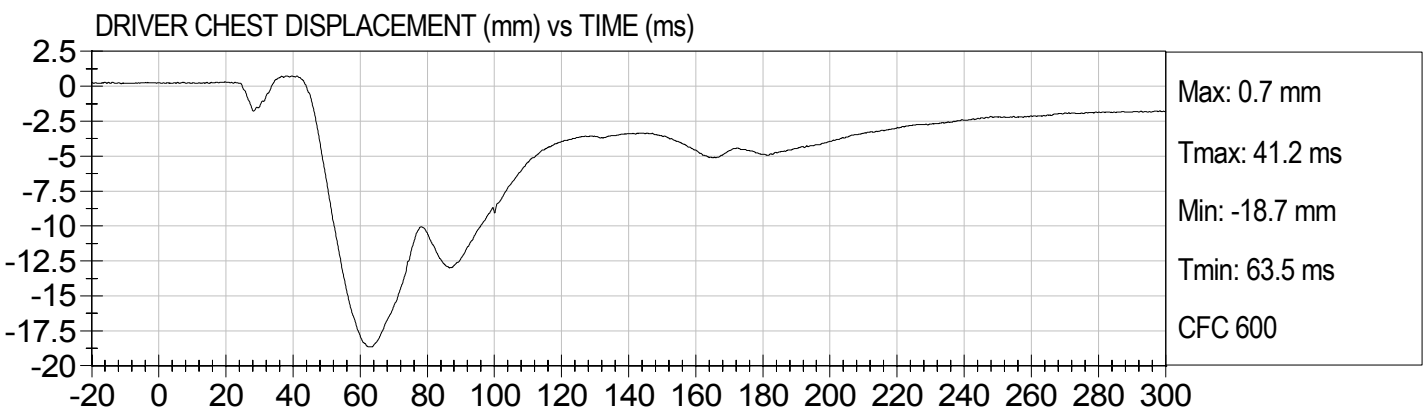
DRIVER CHEST Y Velocity (kph) vs TIME (ms)

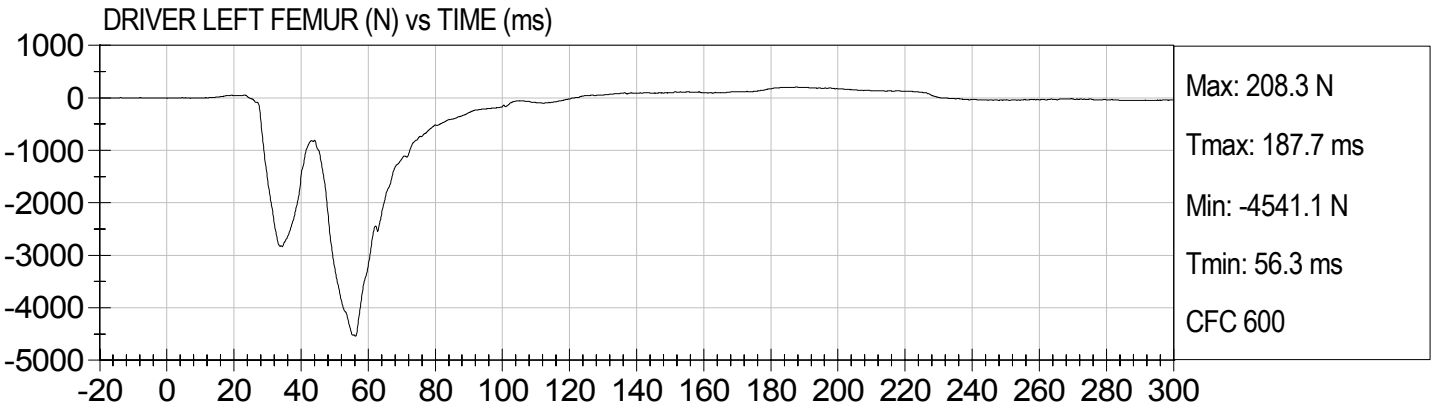


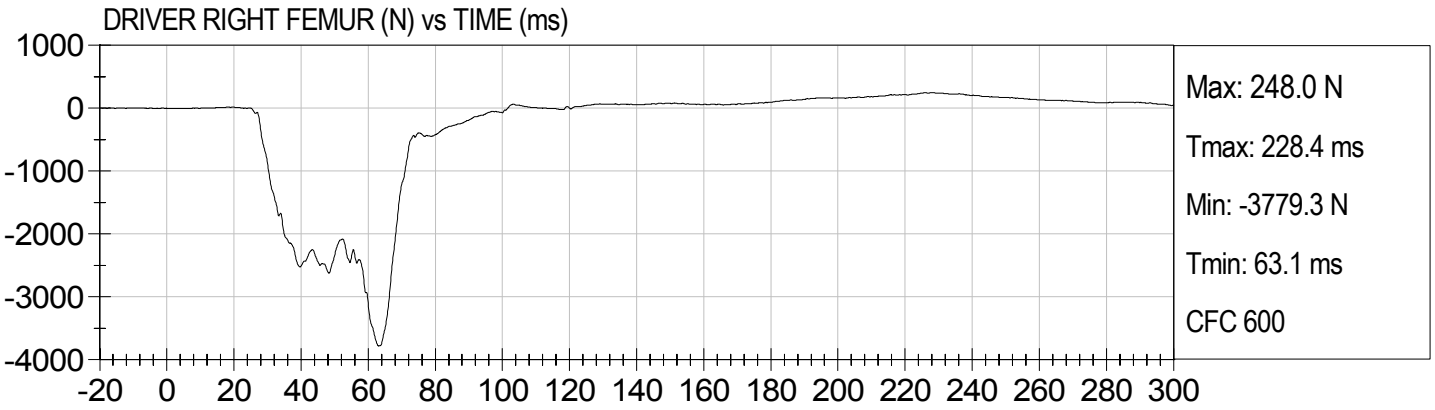
DRIVER CHEST Z Velocity (kph) vs TIME (ms)



DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)



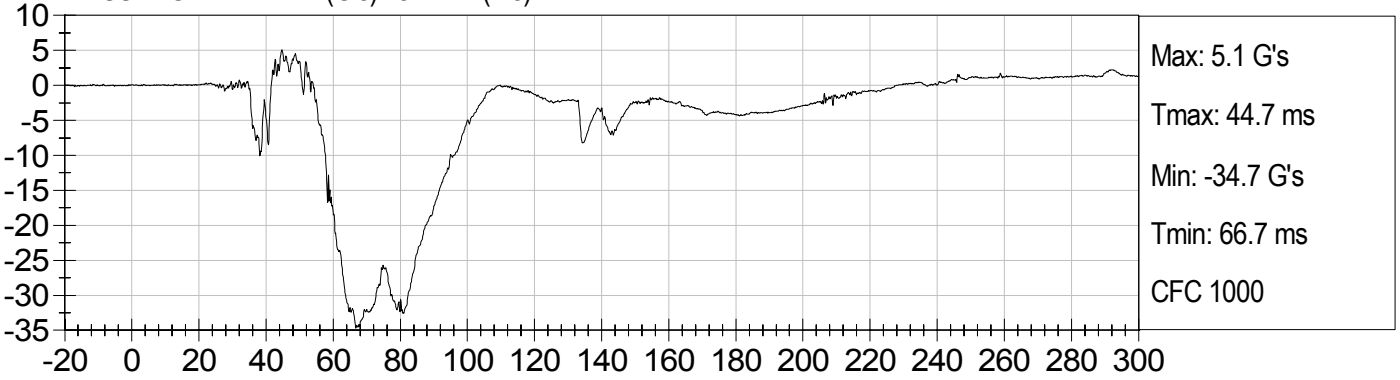

DRIVER LEFT FEMUR (N) vs TIME (ms)
1000
0
-1000
-2000
-3000
-4000
-5000
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 208.3 N
Tmax: 187.7 ms
Min: -4541.1 N
Tmin: 56.3 ms
CFC 600


DRIVER RIGHT FEMUR (N) vs TIME (ms)
1000
0
-1000
-2000
-3000
-4000
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 248.0 N
Tmax: 228.4 ms
Min: -3779.3 N
Tmin: 63.1 ms
CFC 600

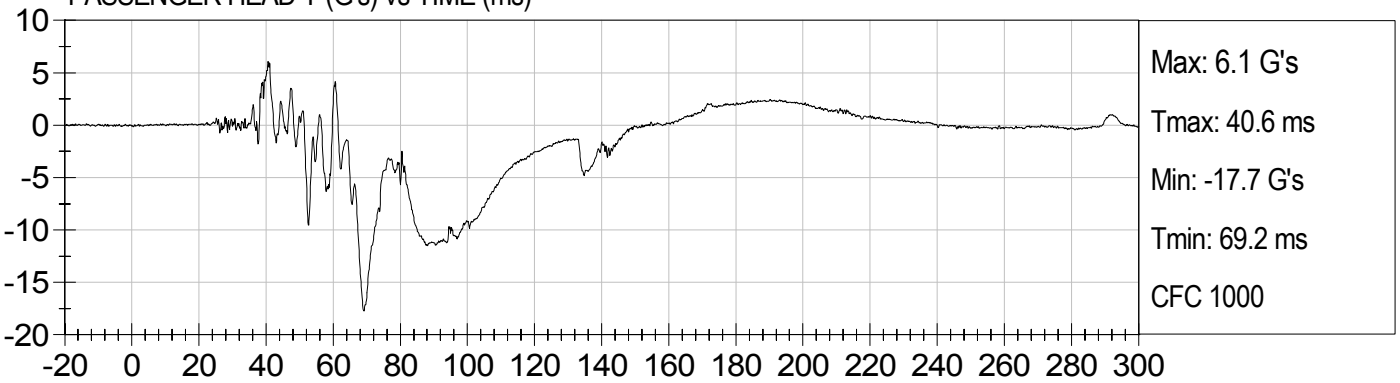
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

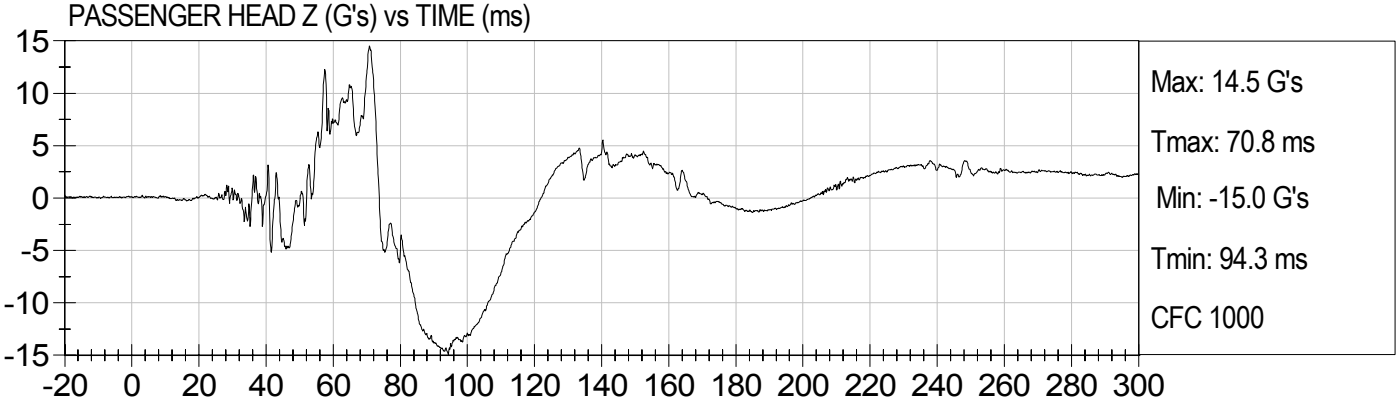
PASSENGER HEAD X (G's) vs TIME (ms)



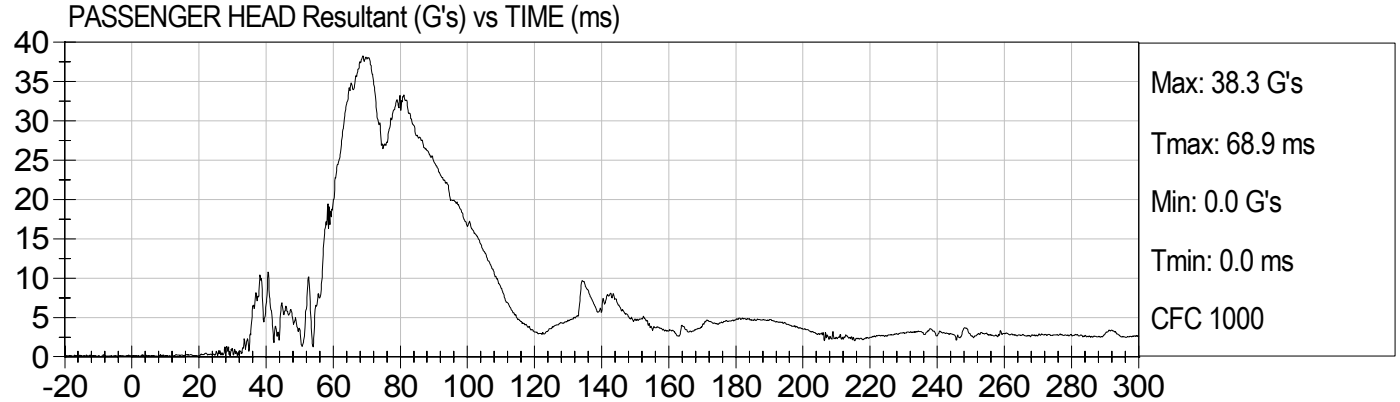
PASSENGER HEAD Y (G's) vs TIME (ms)

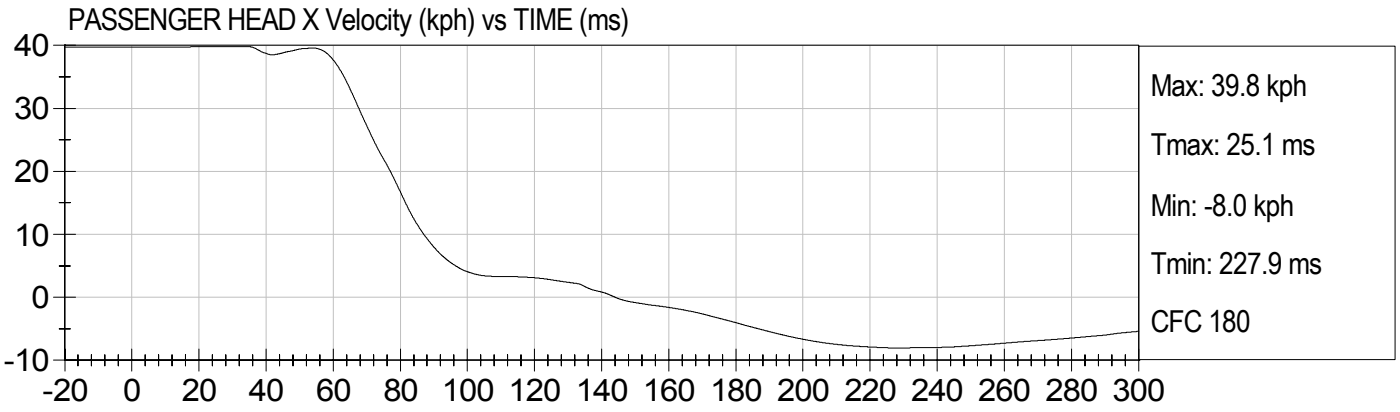


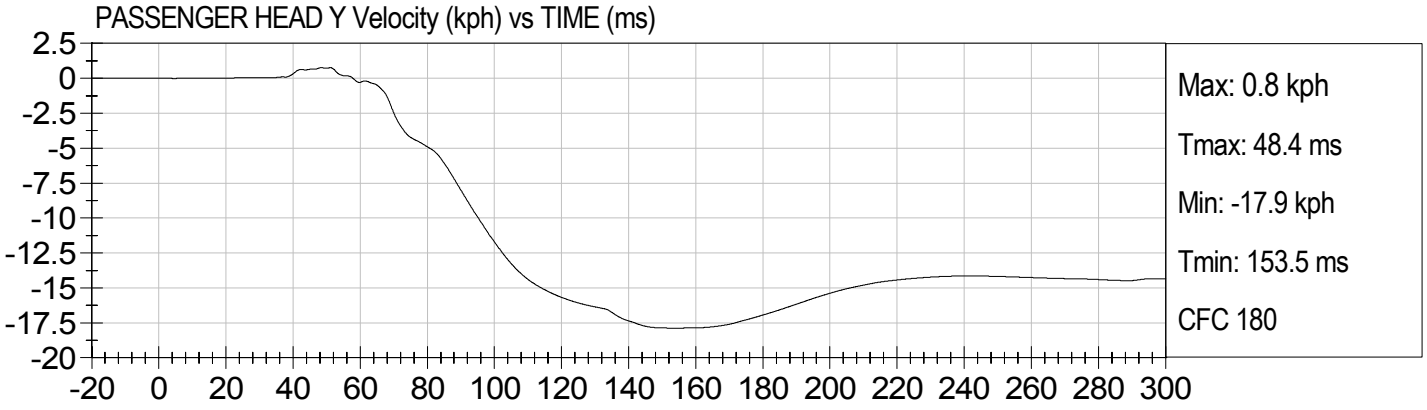
PASSENGER HEAD Z (G's) vs TIME (ms)

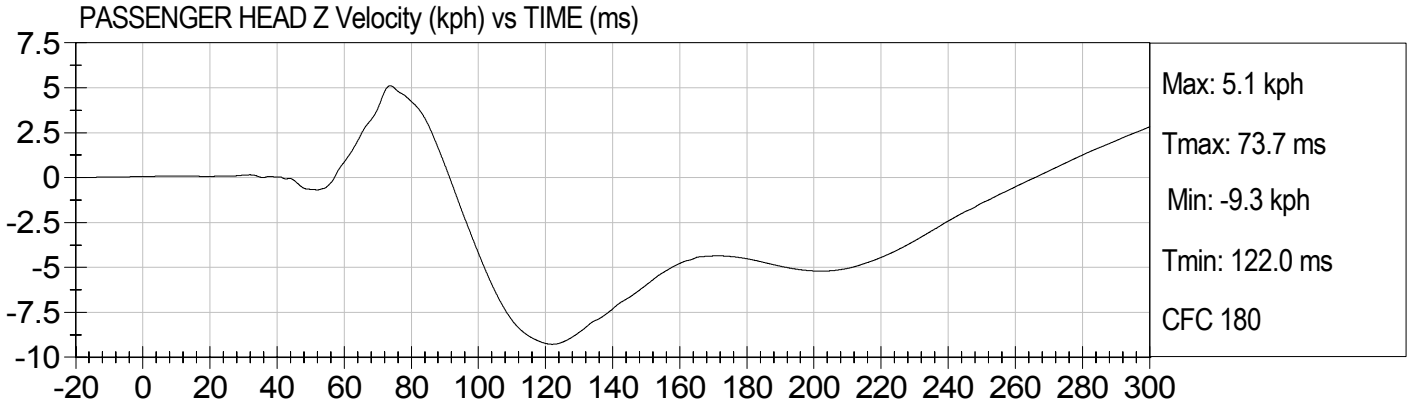


PASSENGER HEAD Resultant (G's) vs TIME (ms)




PASSENGER HEAD X Velocity (kph) vs TIME (ms)
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 39.8 kph
Tmax: 25.1 ms
Min: -8.0 kph
Tmin: 227.9 ms
CFC 180

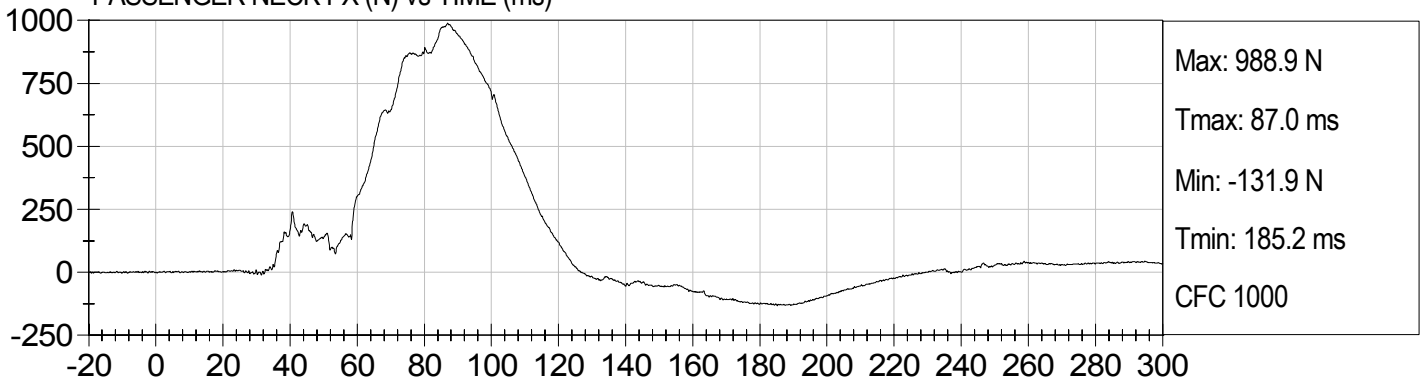

PASSENGER HEAD Y Velocity (kph) vs TIME (ms)
2.5
0
-2.5
-5
-7.5
-10
-12.5
-15
-17.5
-20
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.8 kph
Tmax: 48.4 ms
Min: -17.9 kph
Tmin: 153.5 ms
CFC 180


PASSENGER HEAD Z Velocity (kph) vs TIME (ms)
7.5
5
2.5
0
-2.5
-5
-7.5
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 5.1 kph
Tmax: 73.7 ms
Min: -9.3 kph
Tmin: 122.0 ms
CFC 180

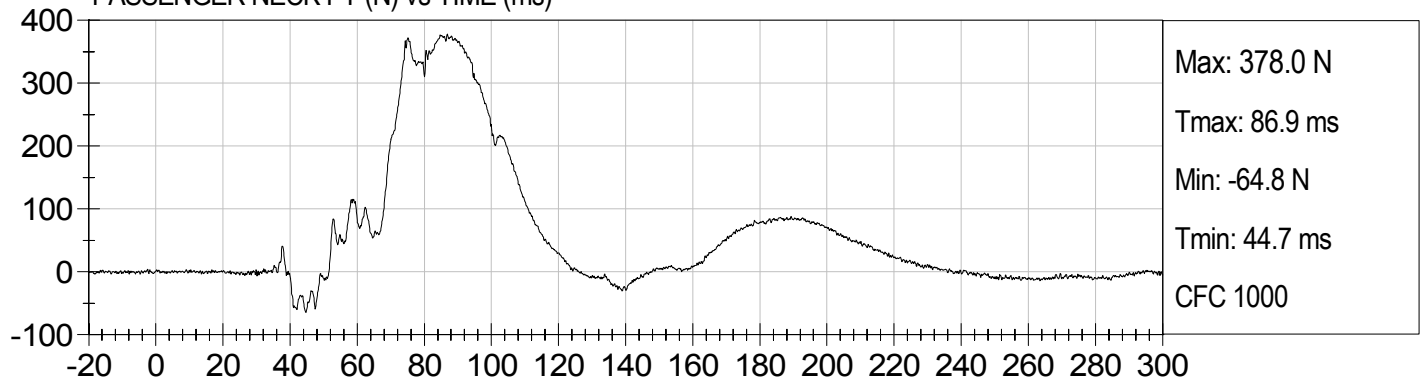
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

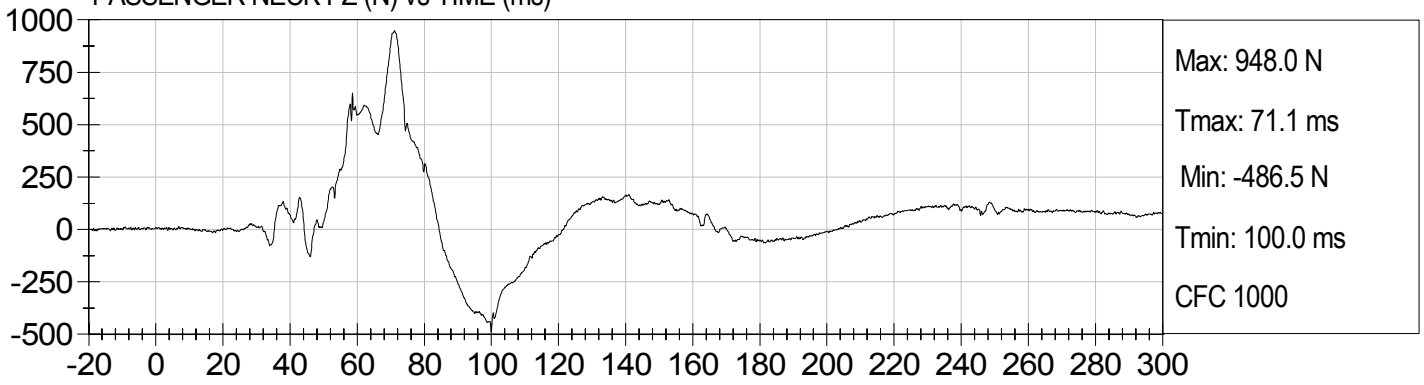
PASSENGER NECK FX (N) vs TIME (ms)



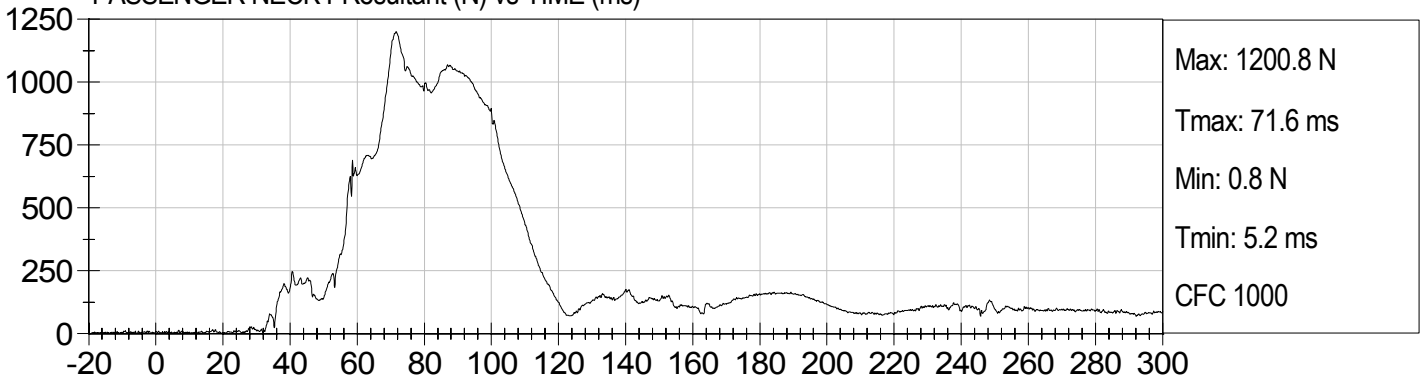
PASSENGER NECK FY (N) vs TIME (ms)



PASSENGER NECK FZ (N) vs TIME (ms)



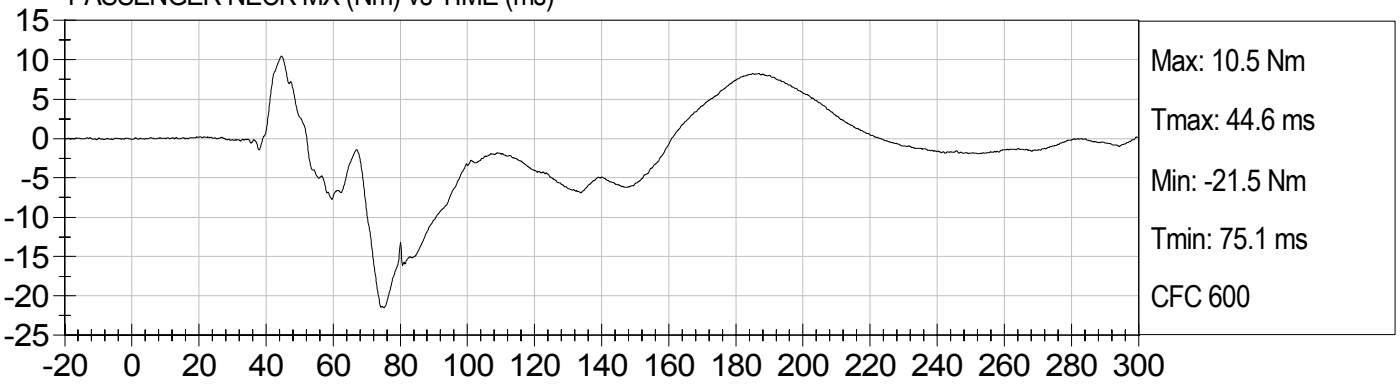
PASSENGER NECK FResultant (N) vs TIME (ms)



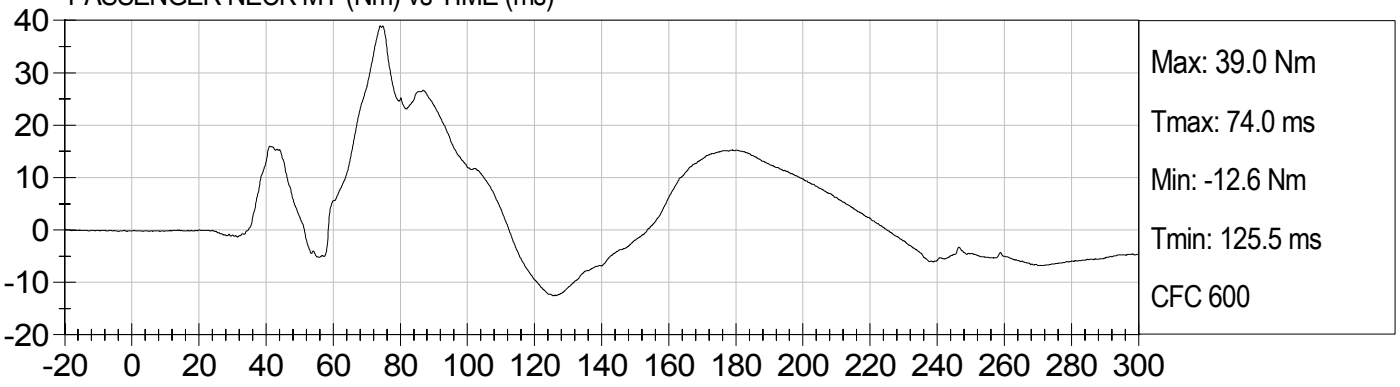
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

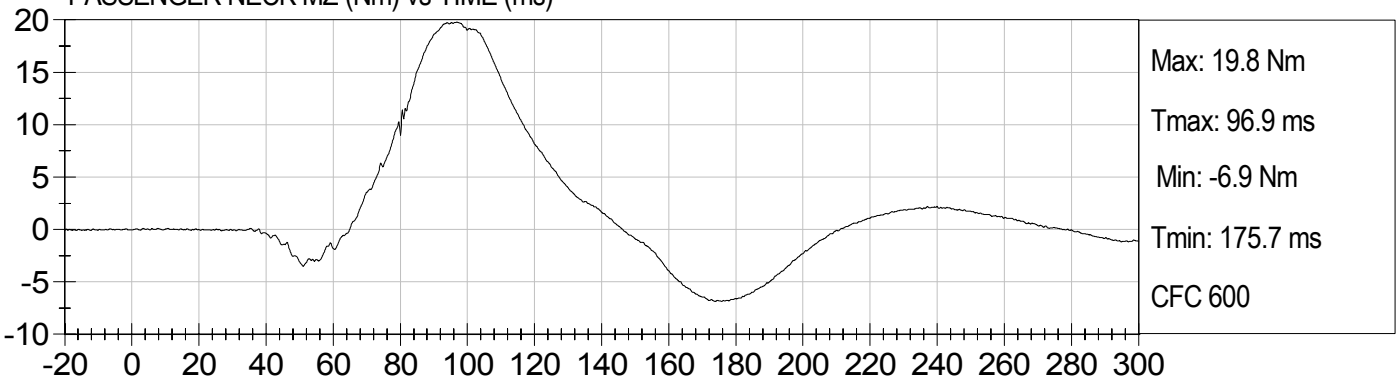
PASSENGER NECK MX (Nm) vs TIME (ms)



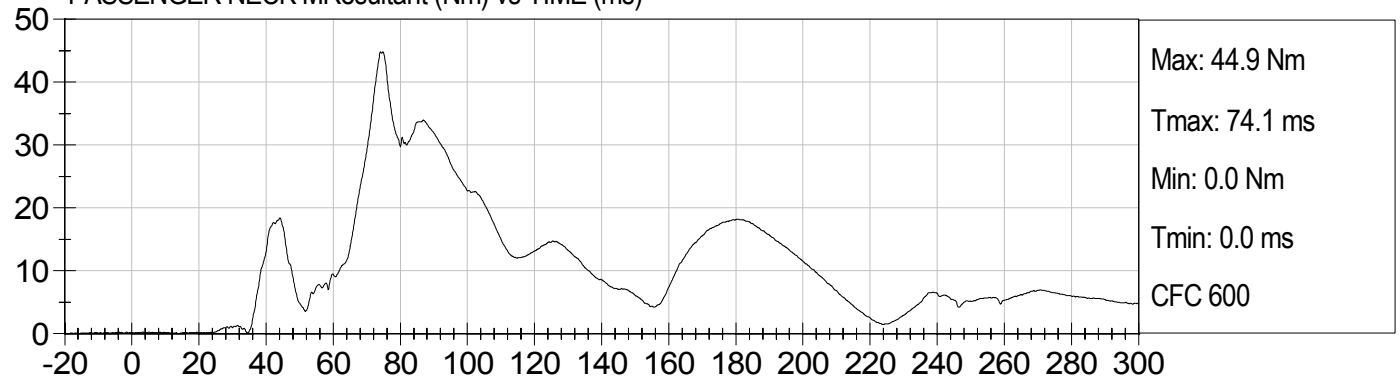
PASSENGER NECK MY (Nm) vs TIME (ms)



PASSENGER NECK MZ (Nm) vs TIME (ms)



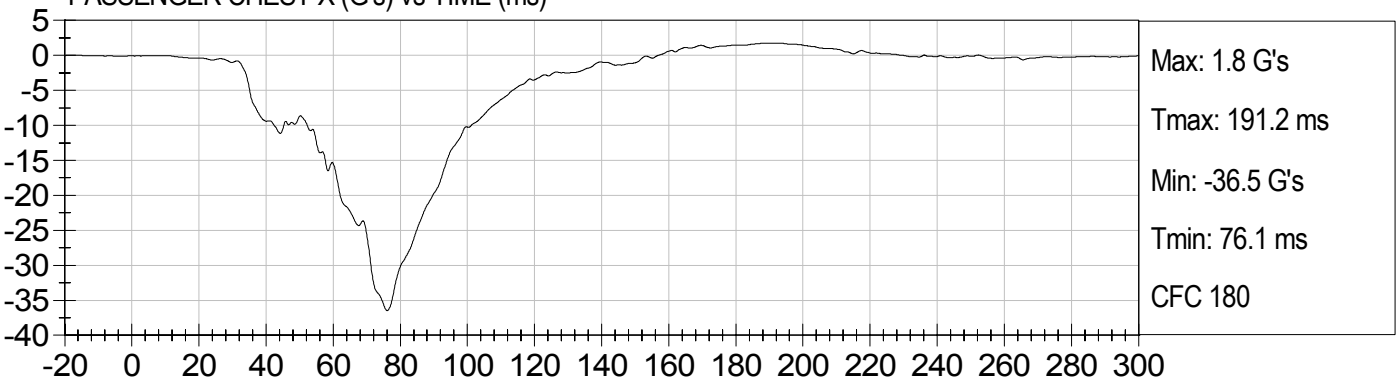
PASSENGER NECK MResultant (Nm) vs TIME (ms)



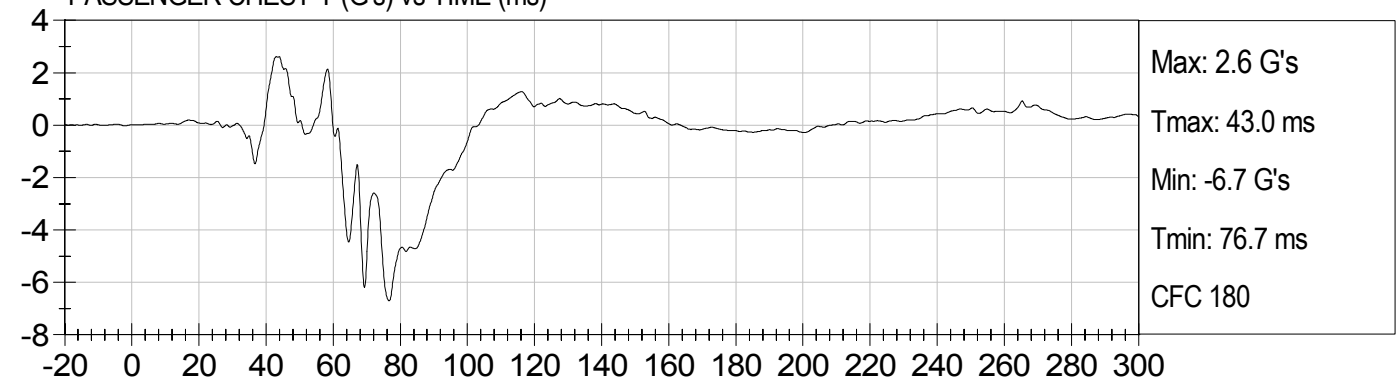
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

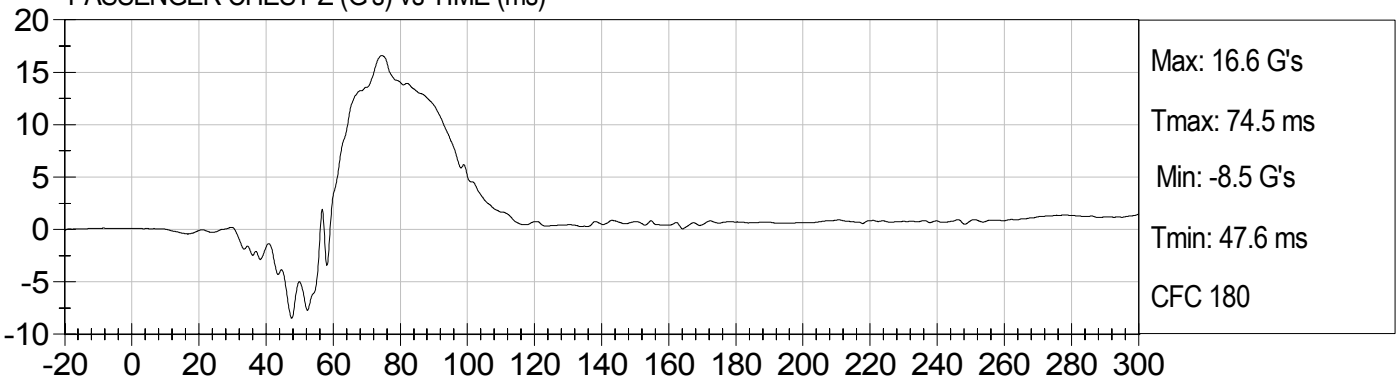
PASSENGER CHEST X (G's) vs TIME (ms)



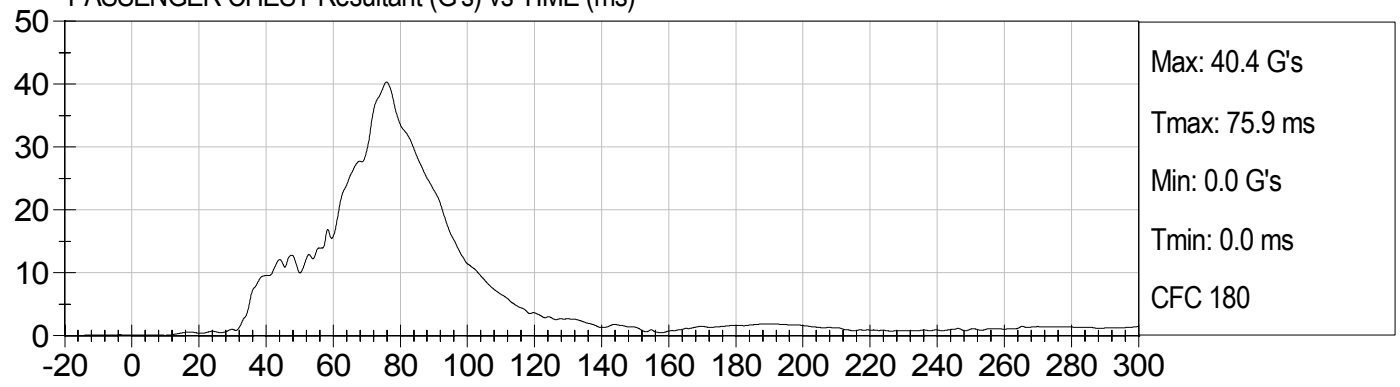
PASSENGER CHEST Y (G's) vs TIME (ms)



PASSENGER CHEST Z (G's) vs TIME (ms)



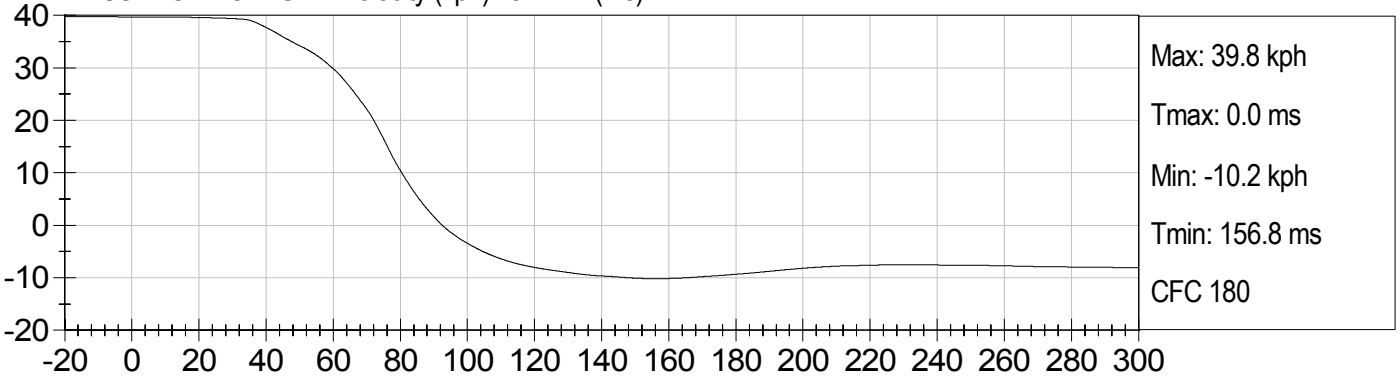
PASSENGER CHEST Resultant (G's) vs TIME (ms)



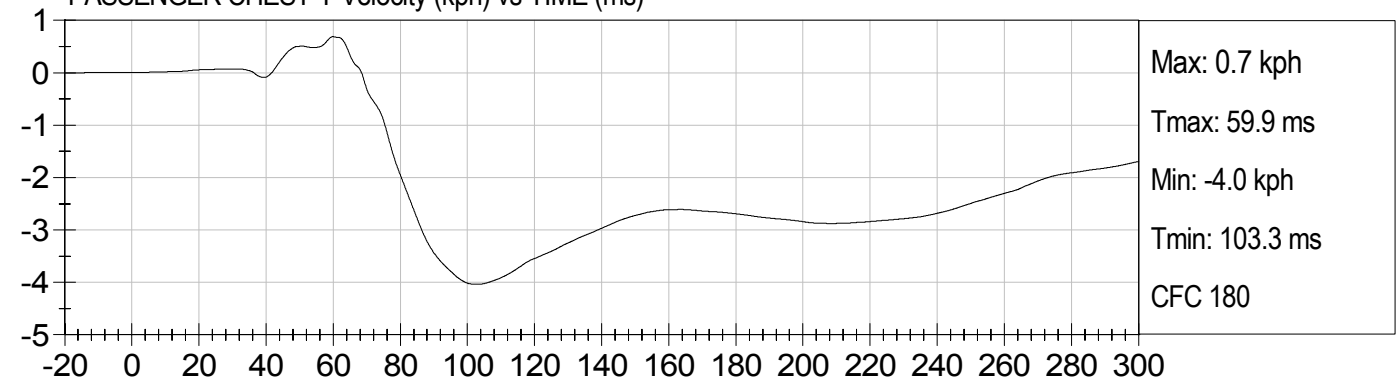
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

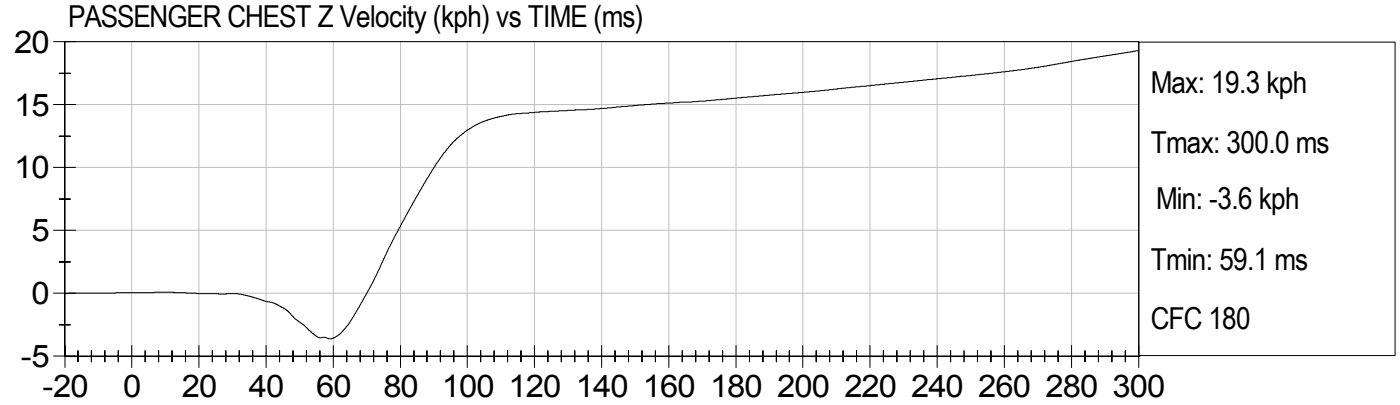
PASSENGER CHEST X Velocity (kph) vs TIME (ms)



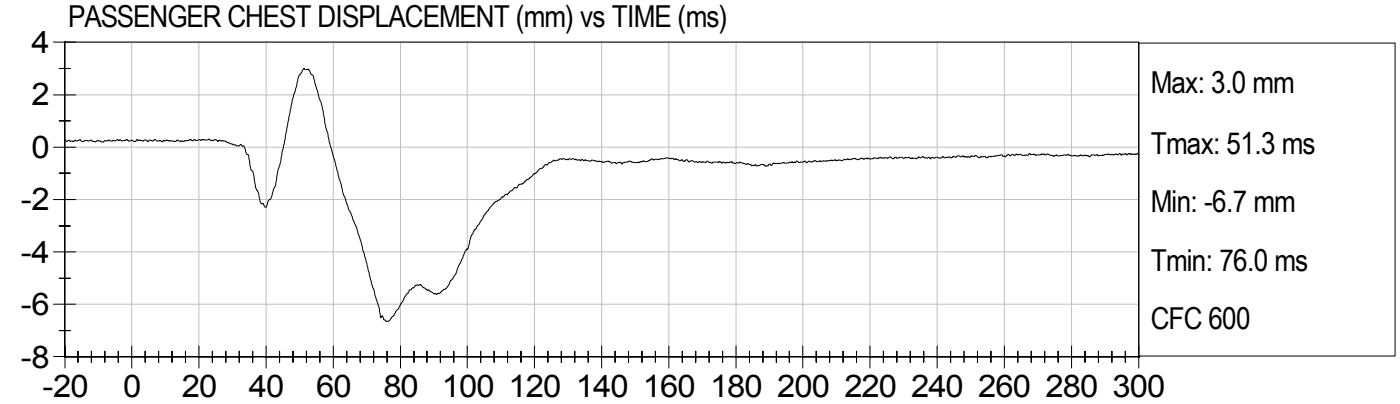
PASSENGER CHEST Y Velocity (kph) vs TIME (ms)

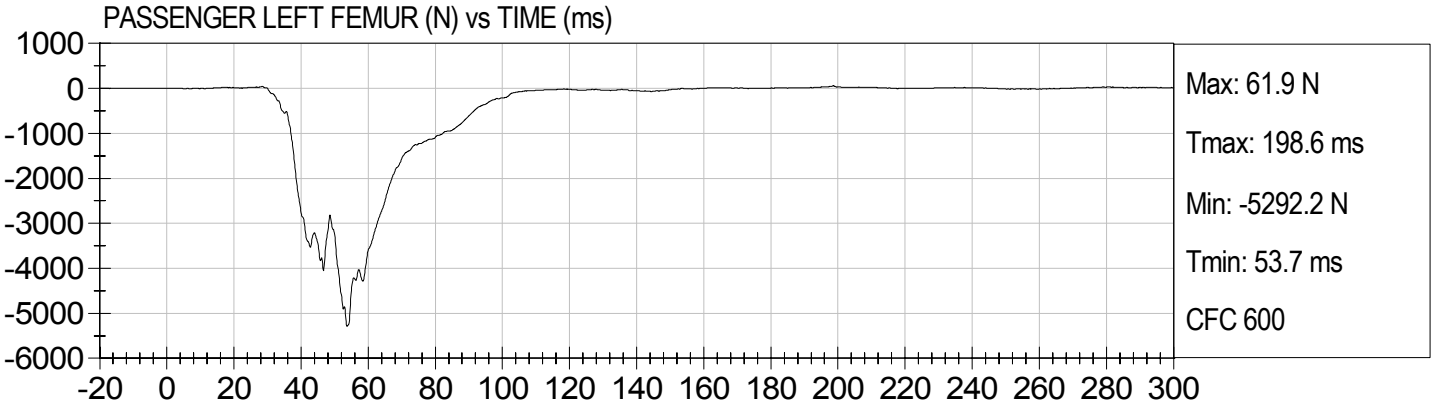


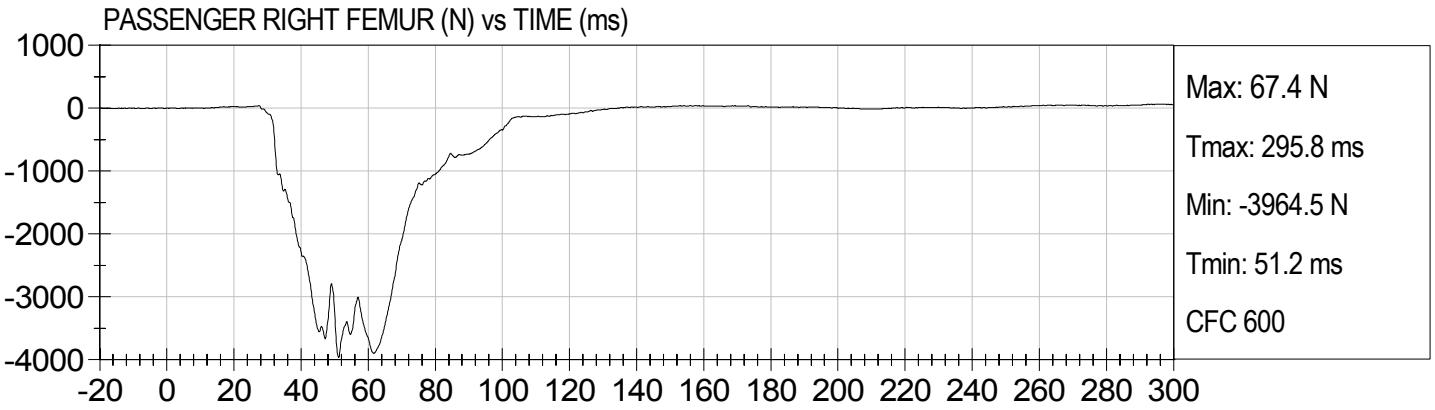
PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)

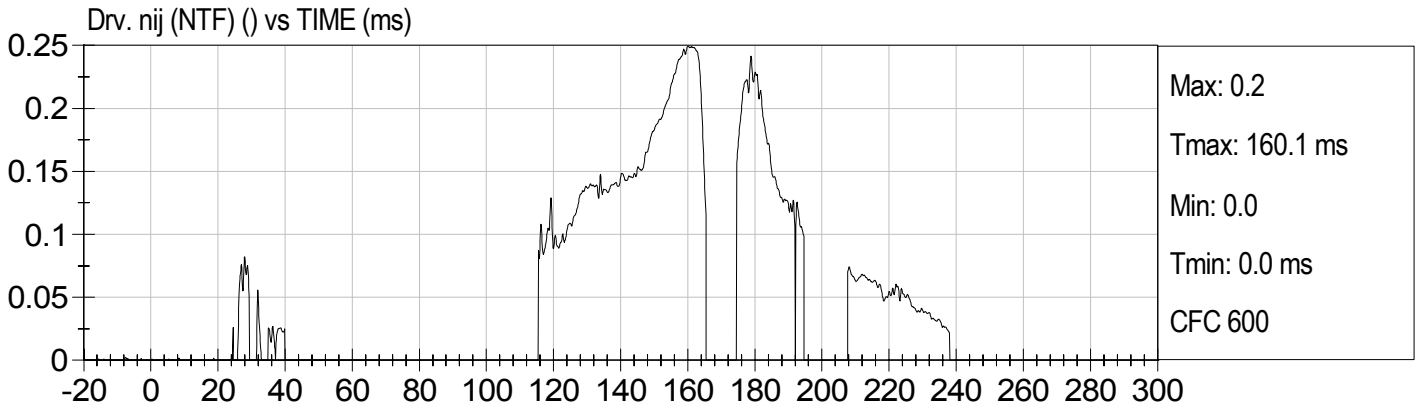


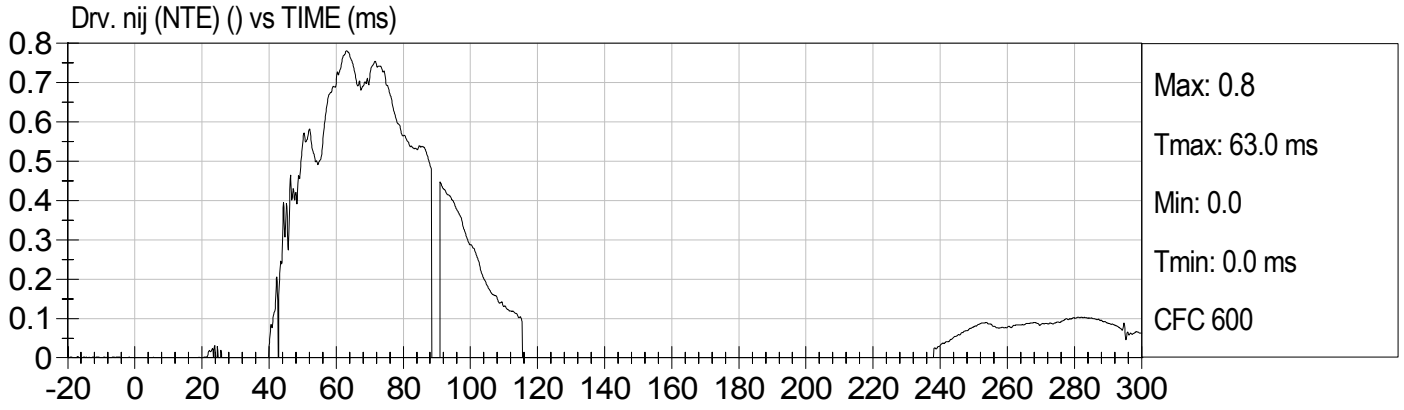

PASSENGER LEFT FEMUR (N) vs TIME (ms)
1000
0
-1000
-2000
-3000
-4000
-5000
-6000
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 61.9 N
Tmax: 198.6 ms
Min: -5292.2 N
Tmin: 53.7 ms
CFC 600

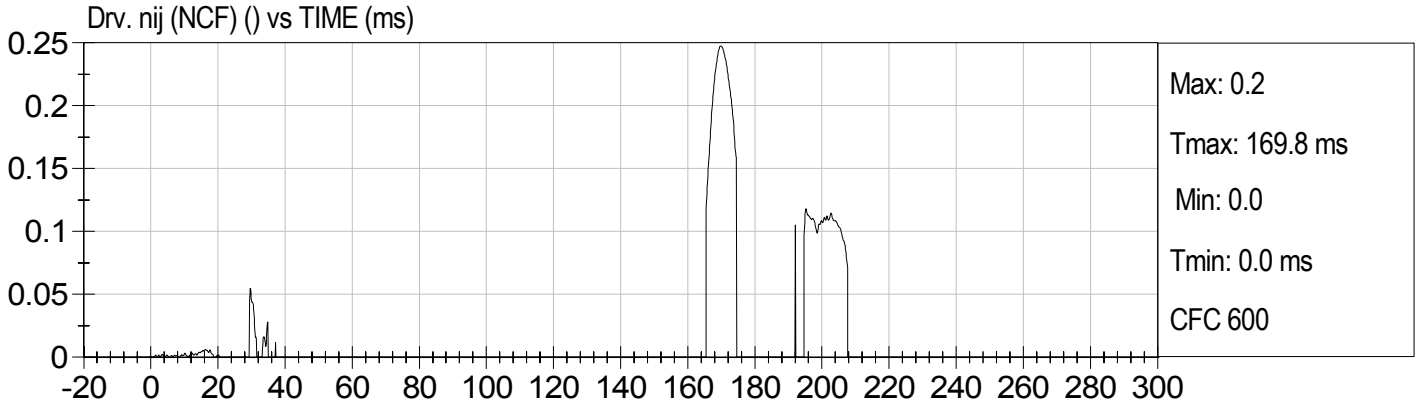

PASSENGER RIGHT FEMUR (N) vs TIME (ms)
1000
0
-1000
-2000
-3000
-4000
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 67.4 N
Tmax: 295.8 ms
Min: -3964.5 N
Tmin: 51.2 ms
CFC 600

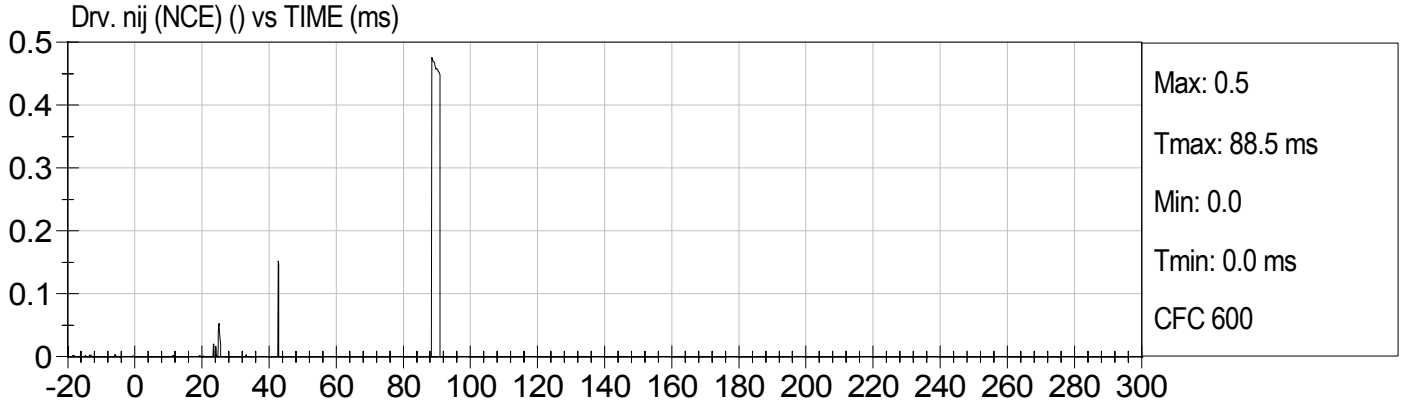
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

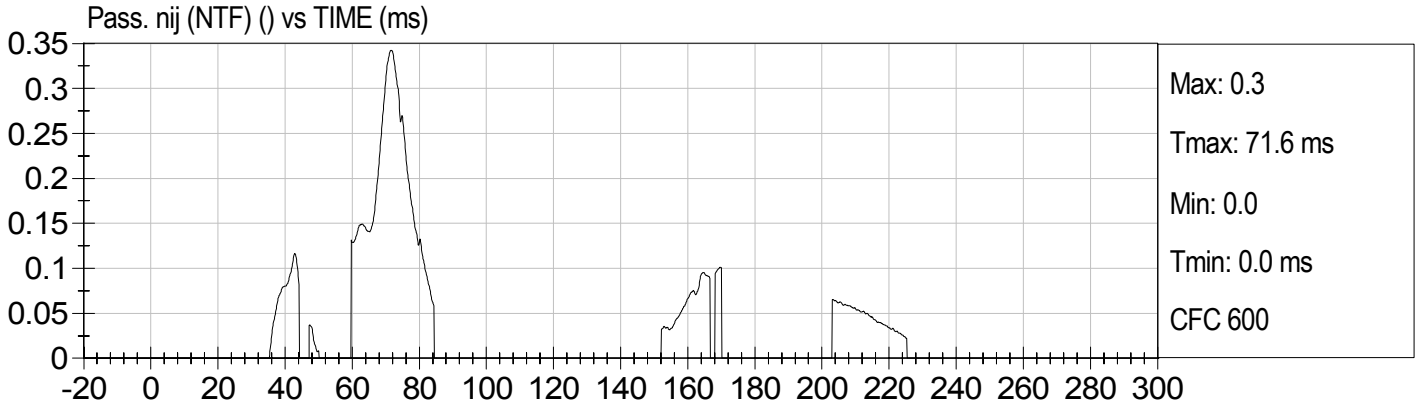
Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

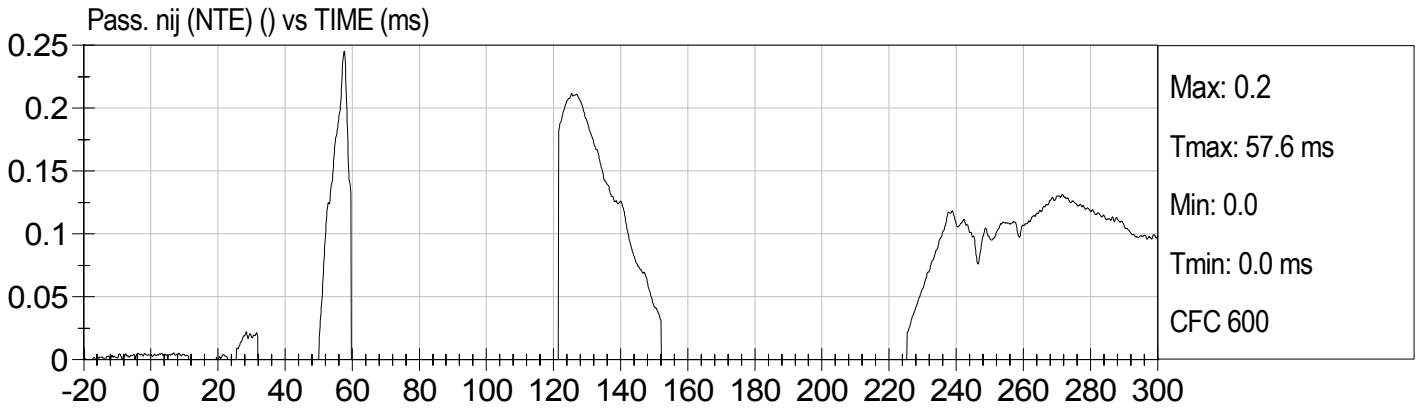


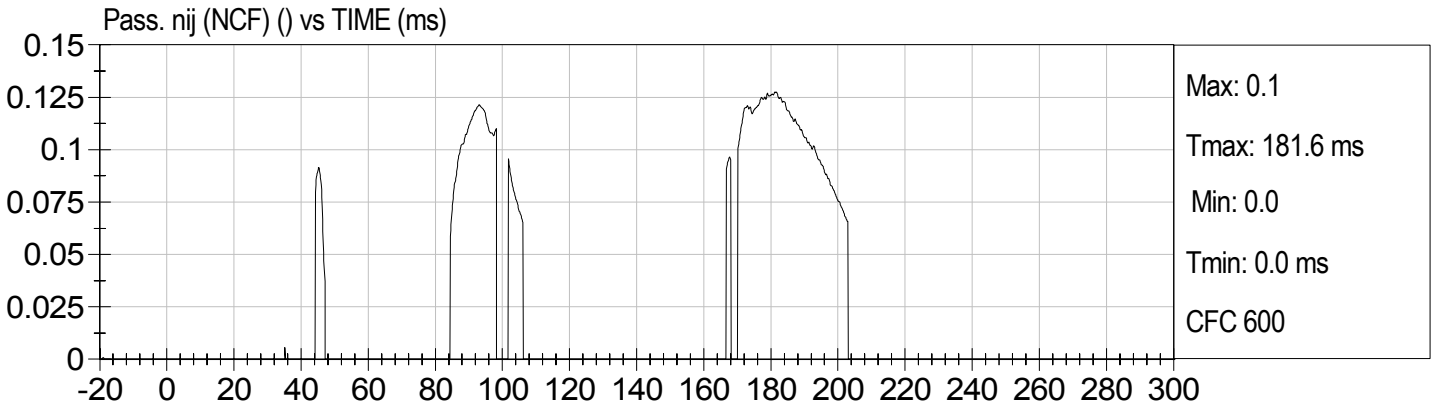


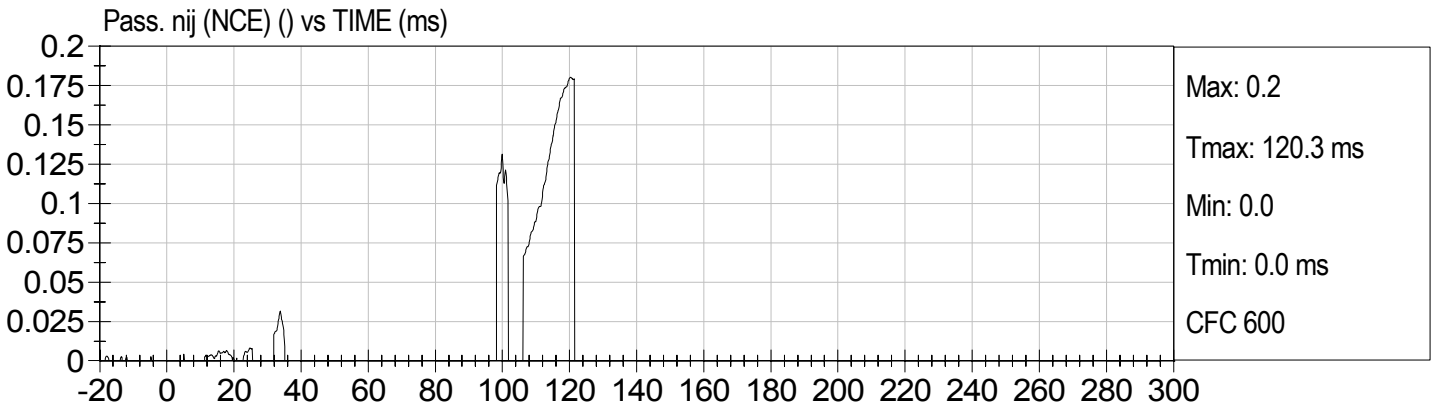


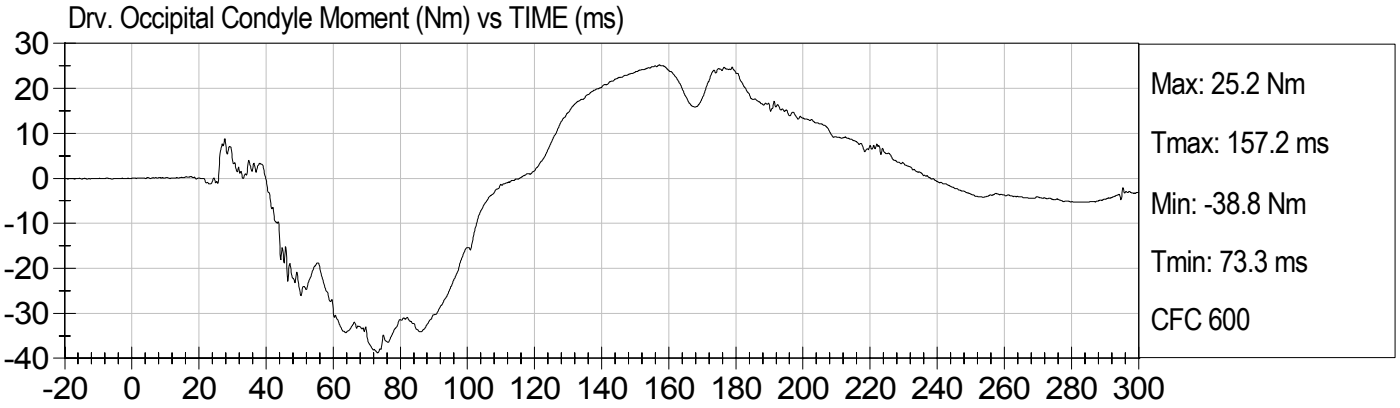


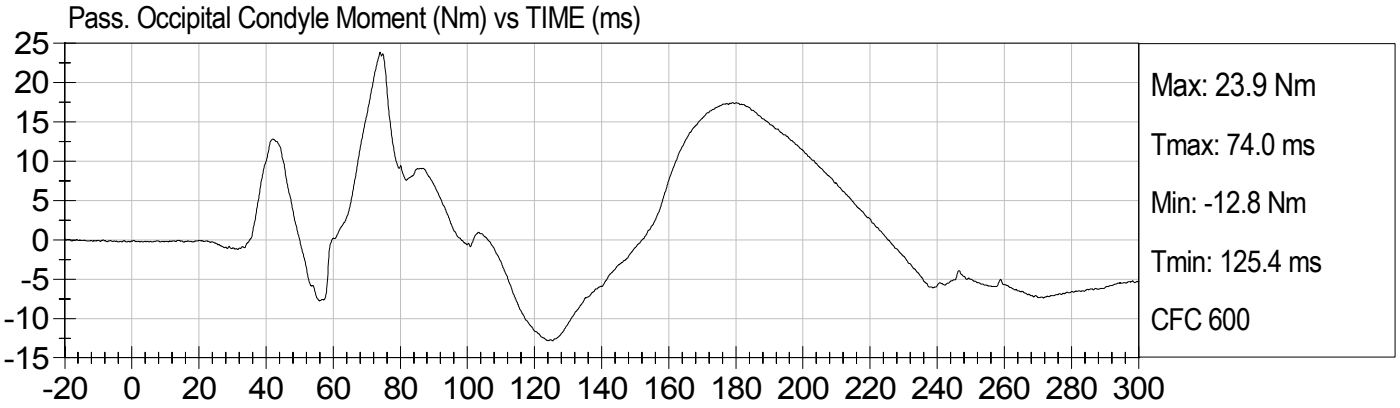

Pass. nij (NTF) () vs TIME (ms)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.3
Tmax: 71.6 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600


Pass. nij (NTE) () vs TIME (ms)
0.25
0.2
0.15
0.1
0.05
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.2
Tmax: 57.6 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600


Pass. nij (NCF) () vs TIME (ms)
0.15
0.125
0.1
0.075
0.05
0.025
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.1
Tmax: 181.6 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600


Pass. nij (NCE) () vs TIME (ms)
0.2
0.175
0.15
0.125
0.1
0.075
0.05
0.025
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.2
Tmax: 120.3 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

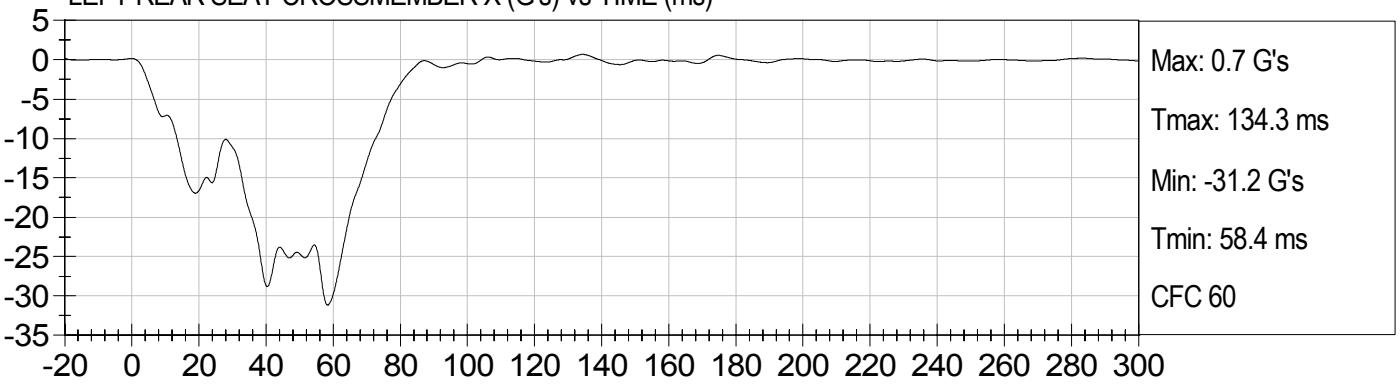

Drv. Occipital Condyle Moment (Nm) vs TIME (ms)
30
20
10
0
-10
-20
-30
-40
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 25.2 Nm
Tmax: 157.2 ms
Min: -38.8 Nm
Tmin: 73.3 ms
CFC 600


Pass. Occipital Condyle Moment (Nm) vs TIME (ms)
25
20
15
10
5
0
-5
-10
-15
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 23.9 Nm
Tmax: 74.0 ms
Min: -12.8 Nm
Tmin: 125.4 ms
CFC 600

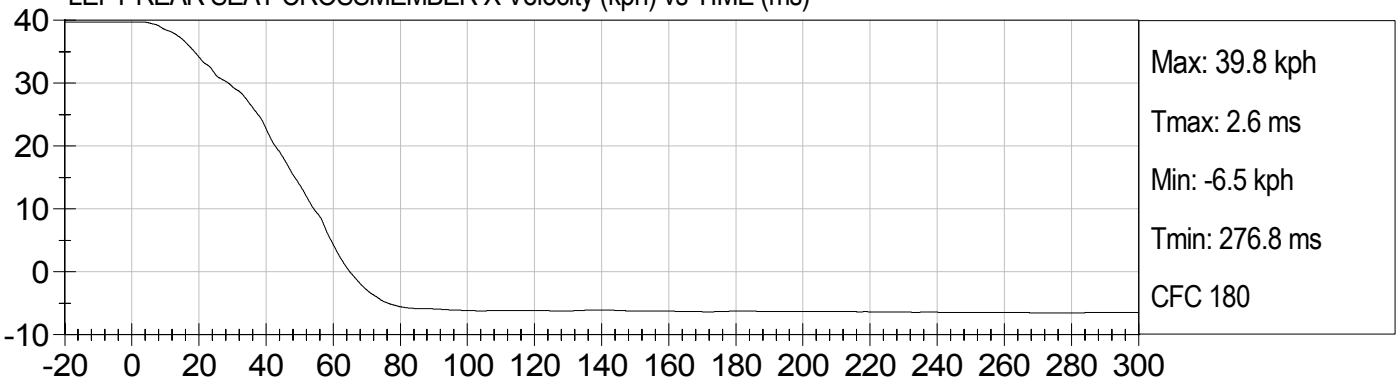
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

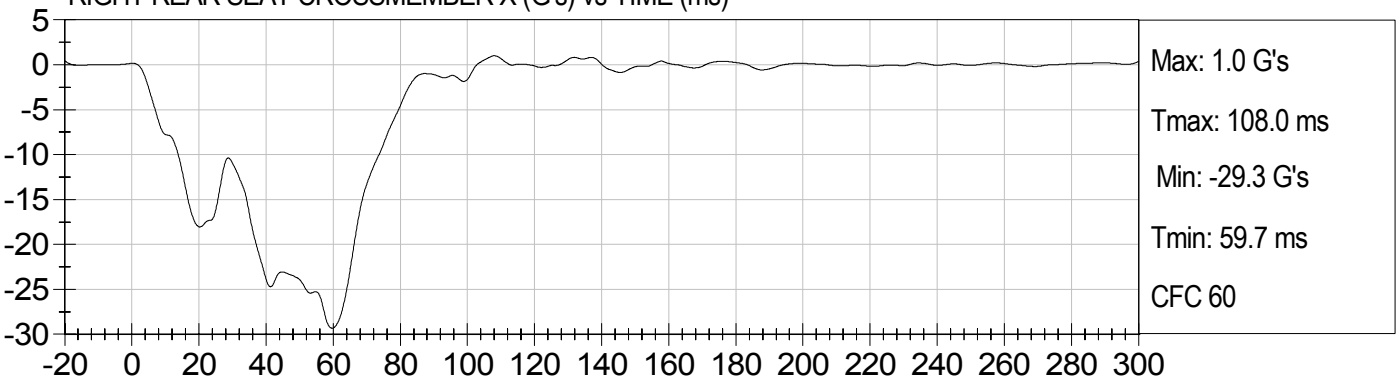
LEFT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



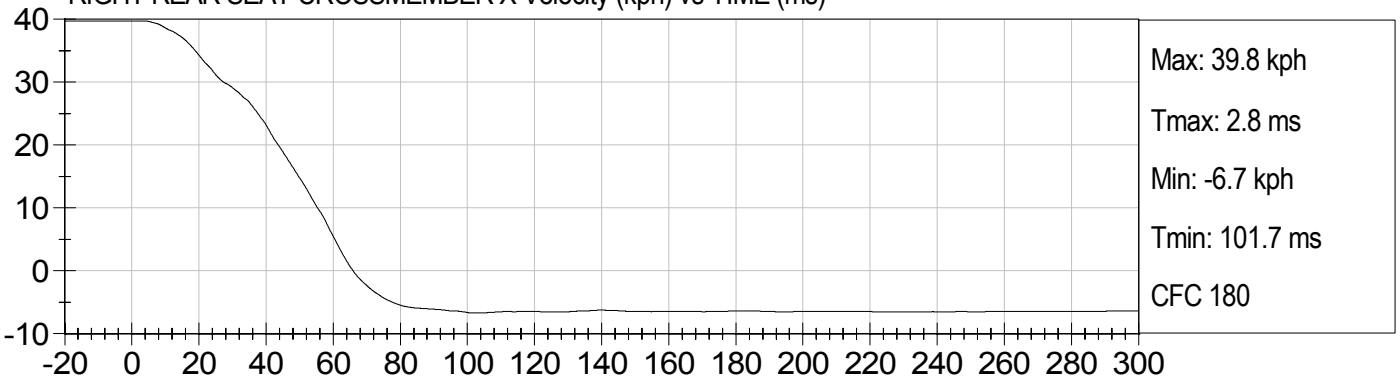
LEFT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



RIGHT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



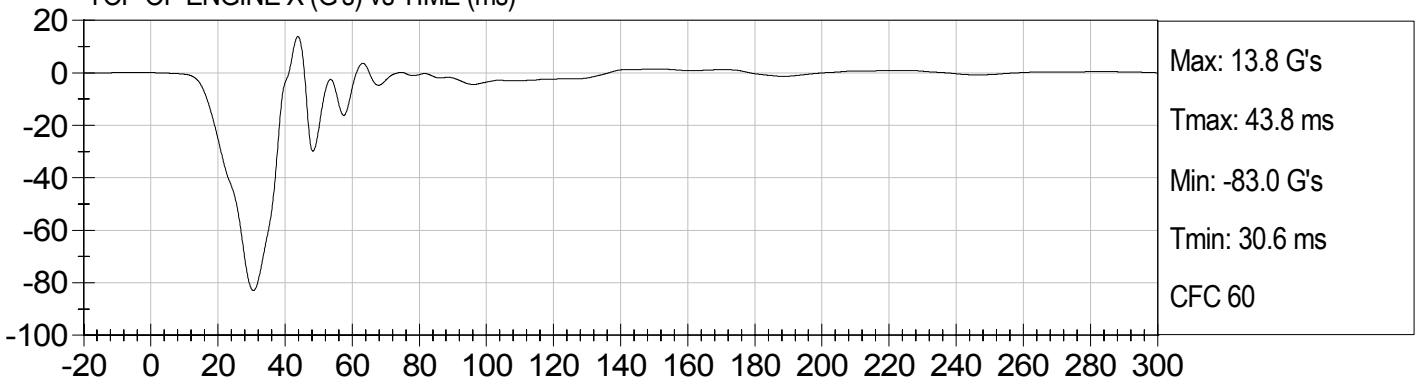
RIGHT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



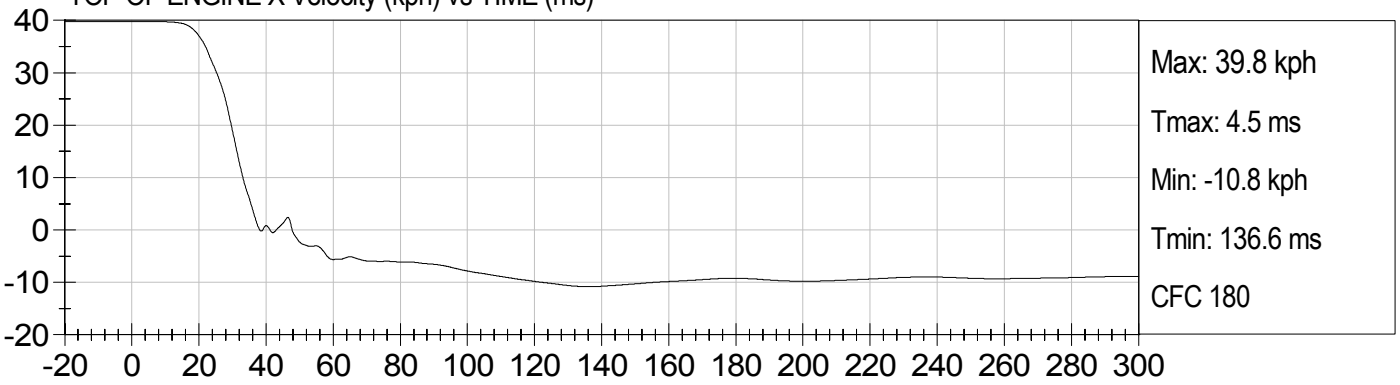
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

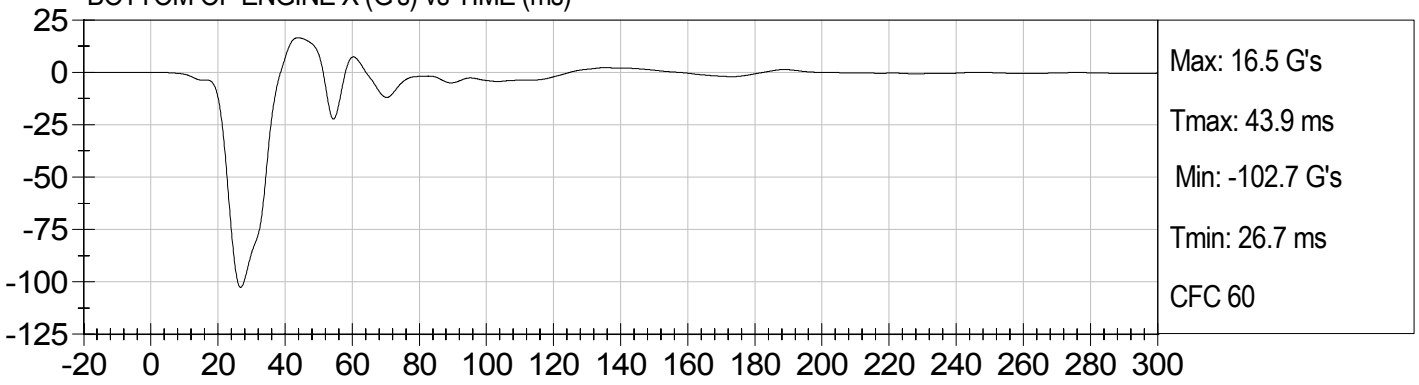
TOP OF ENGINE X (G's) vs TIME (ms)



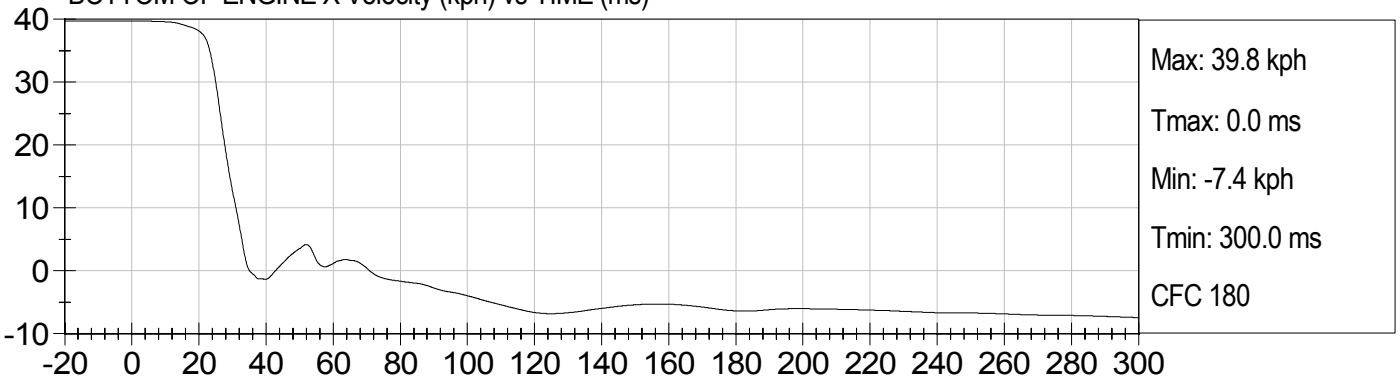
TOP OF ENGINE X Velocity (kph) vs TIME (ms)



BOTTOM OF ENGINE X (G's) vs TIME (ms)



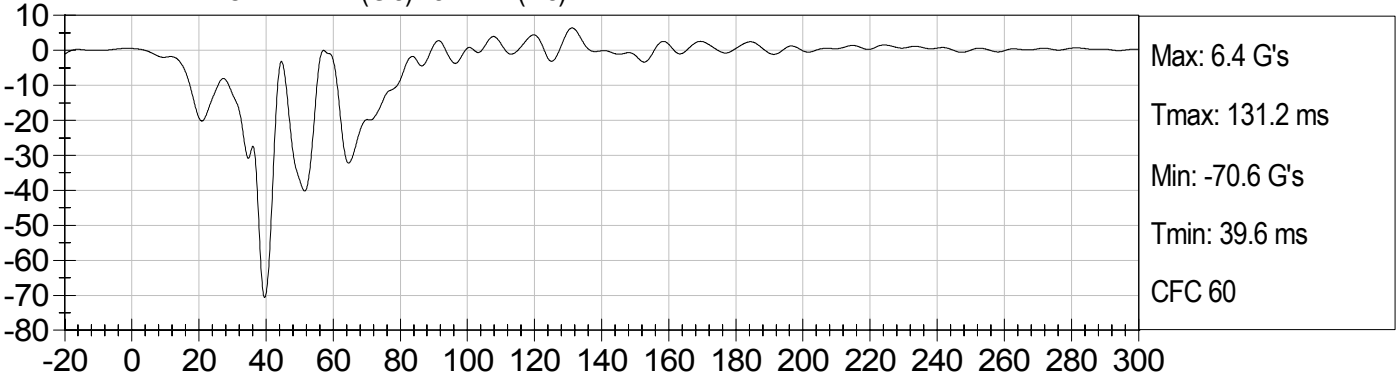
BOTTOM OF ENGINE X Velocity (kph) vs TIME (ms)



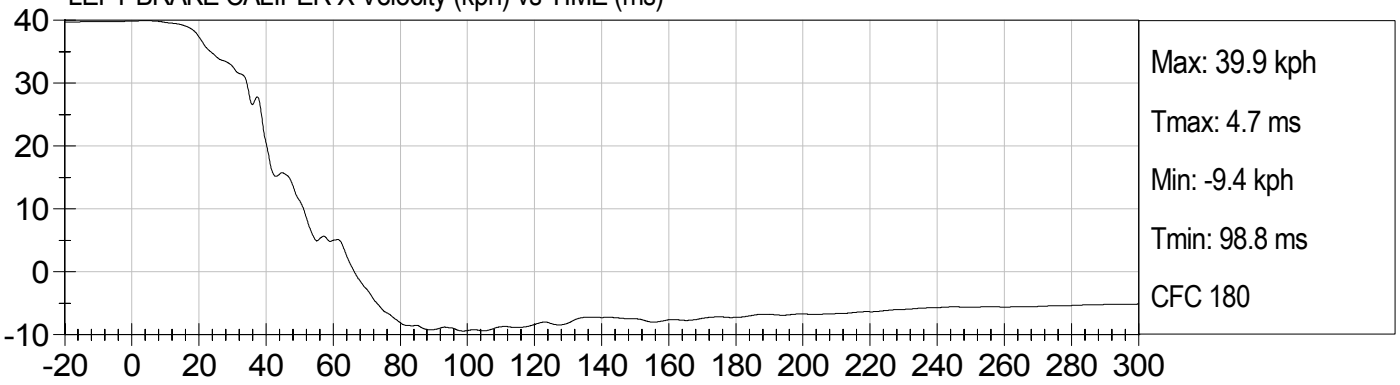
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

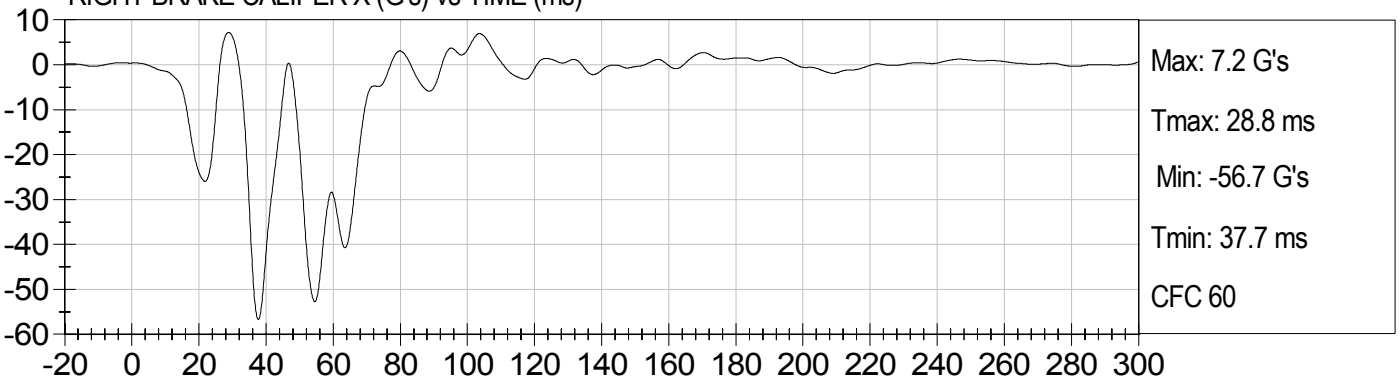
LEFT BRAKE CALIPER X (G's) vs TIME (ms)



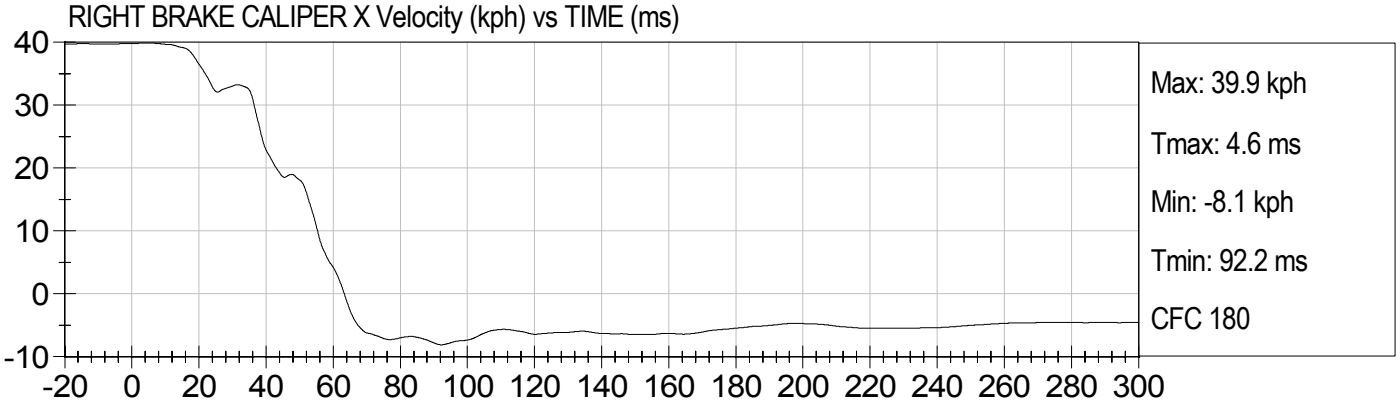
LEFT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



RIGHT BRAKE CALIPER X (G's) vs TIME (ms)



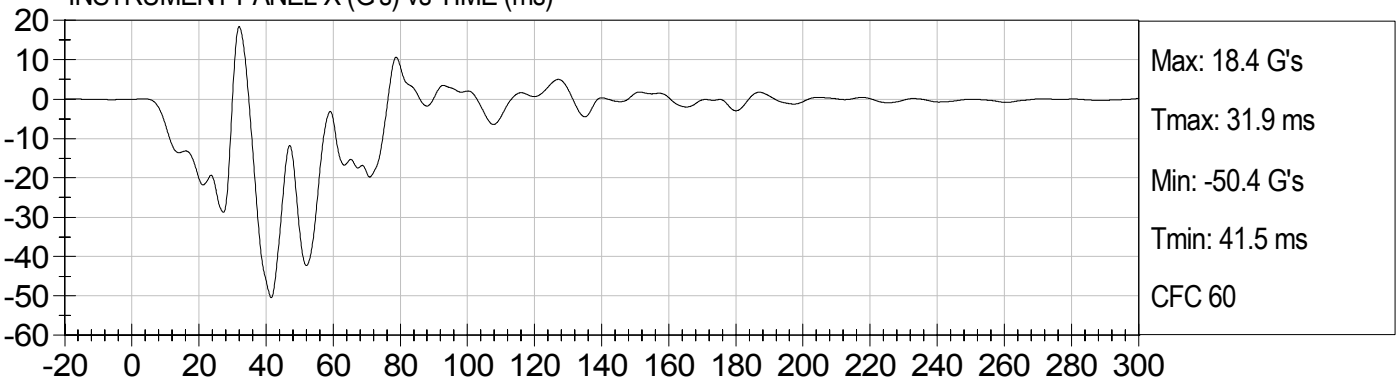
RIGHT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



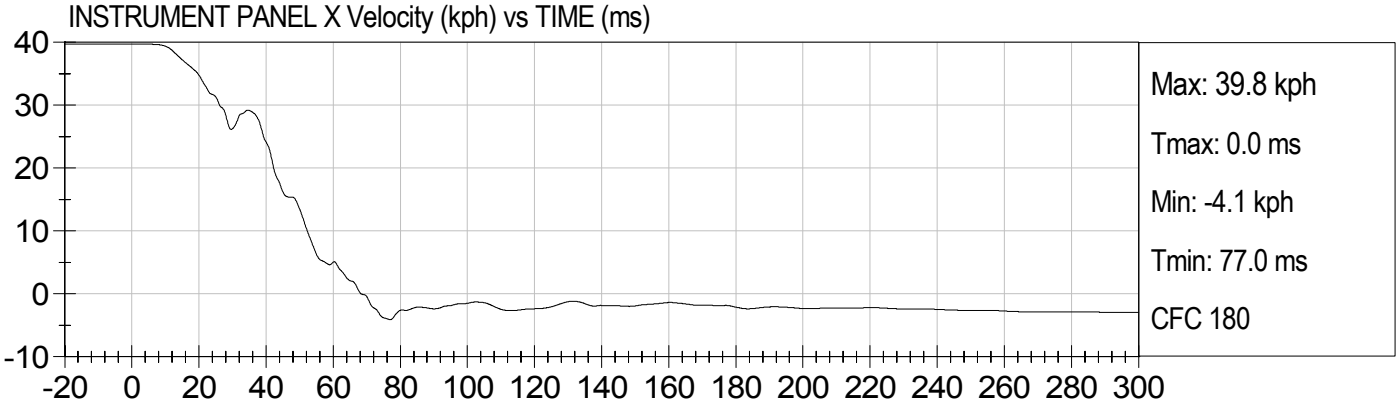
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

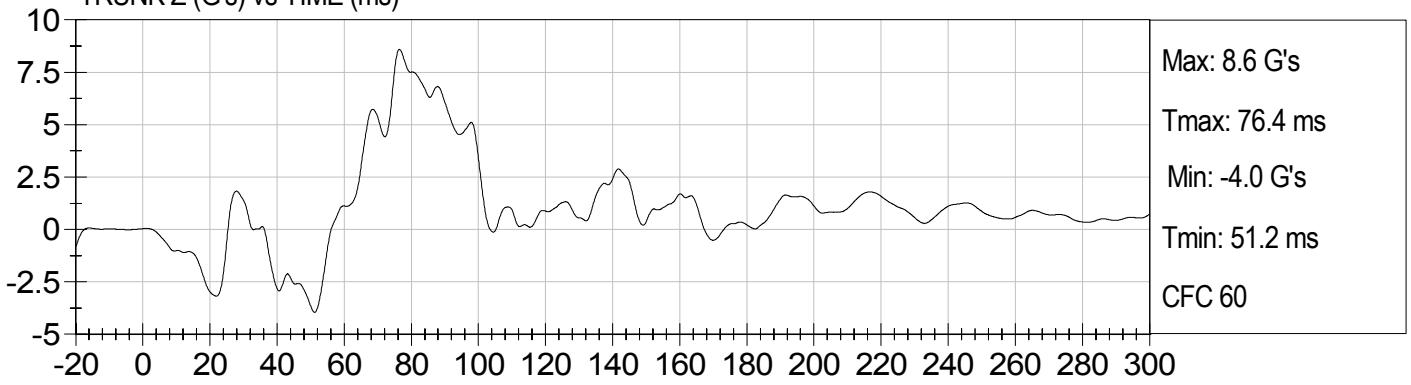
INSTRUMENT PANEL X (G's) vs TIME (ms)



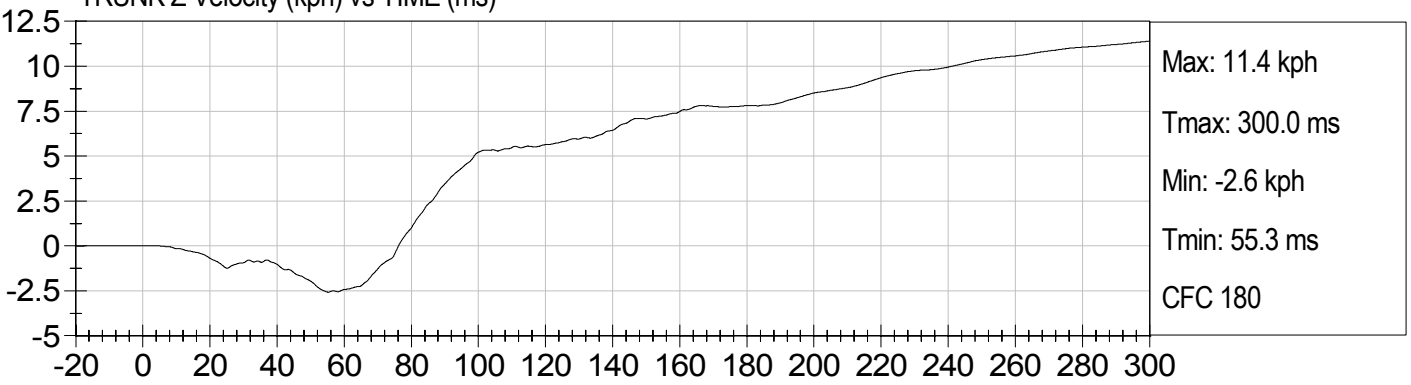
INSTRUMENT PANEL X Velocity (kph) vs TIME (ms)



TRUNK Z (G's) vs TIME (ms)



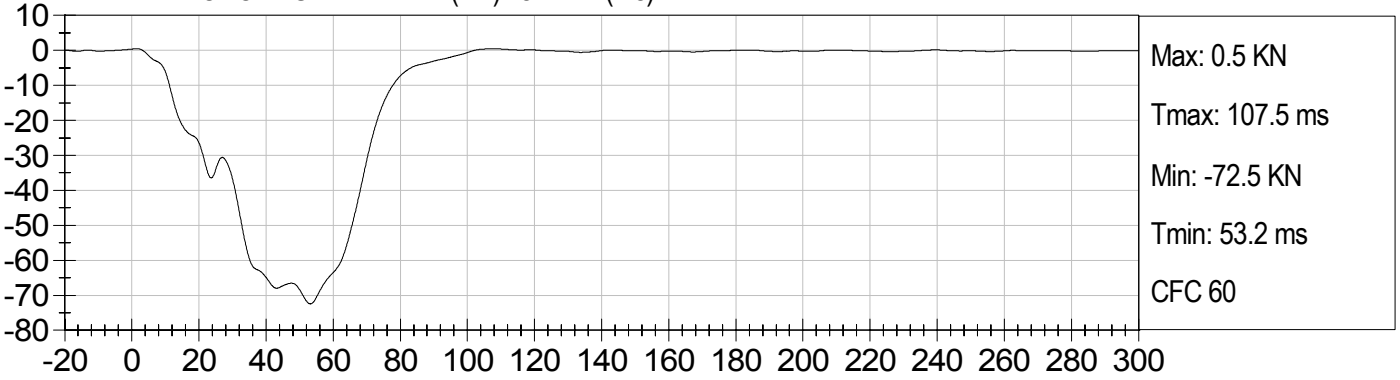
TRUNK Z Velocity (kph) vs TIME (ms)



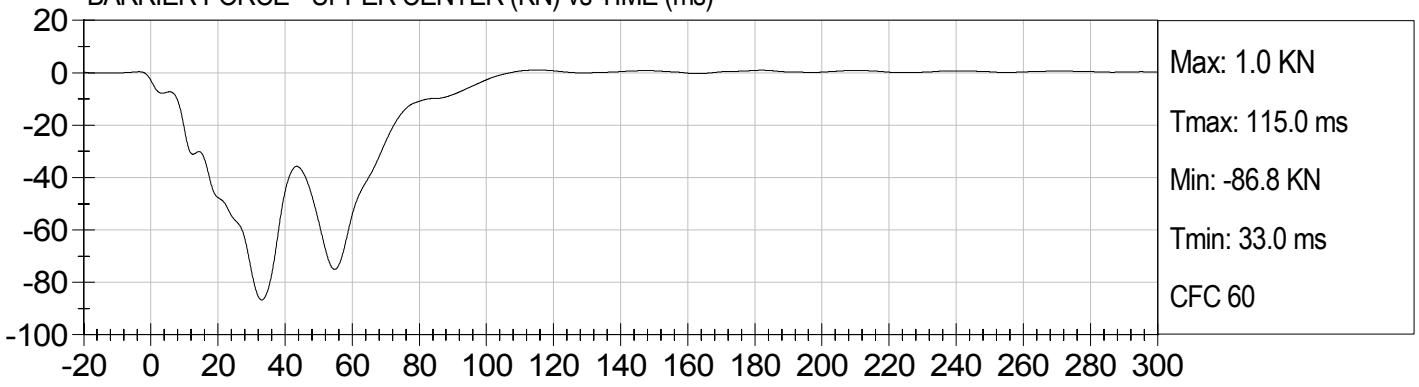
25 MPH FRONTAL UNBELTED
2005 HYUNDAI SANTA FE (C50510)

Test Date: 04/19/2006
Speed: 24.7 mph (39.8 km/h)

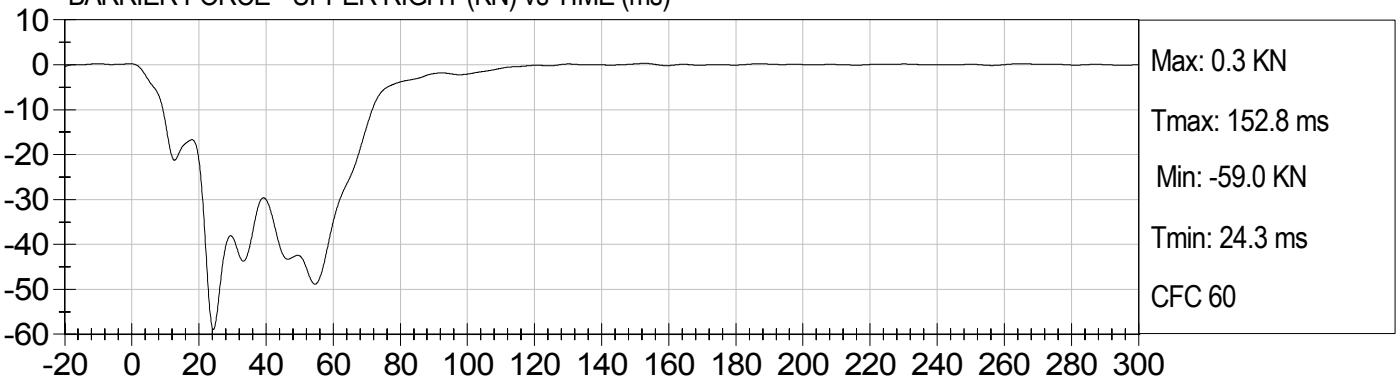
BARRIER FORCE - UPPER LEFT (KN) vs TIME (ms)



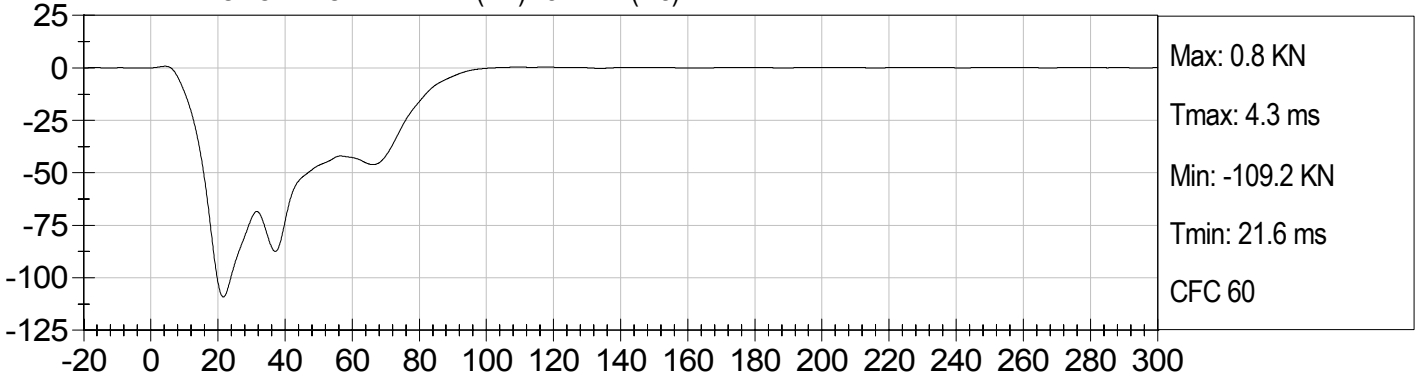
BARRIER FORCE - UPPER CENTER (KN) vs TIME (ms)



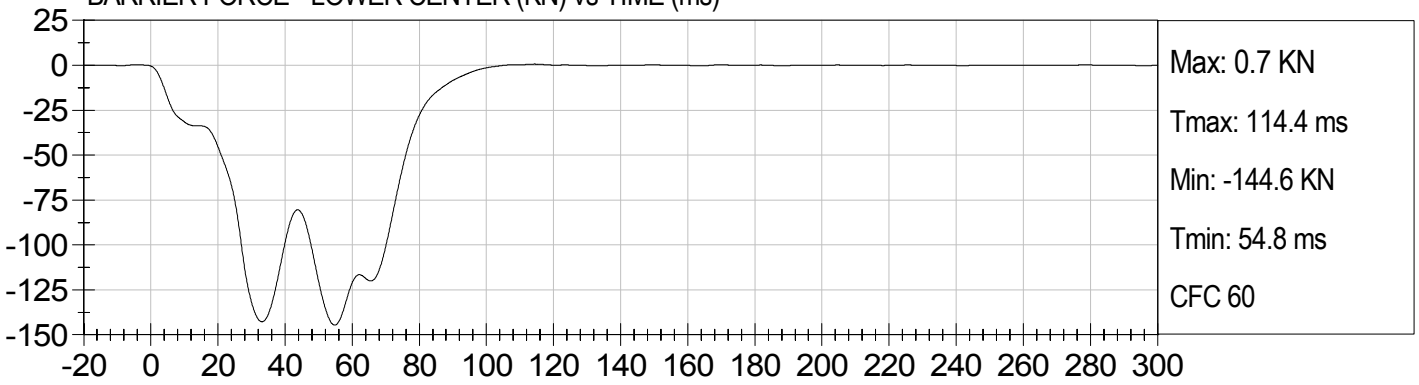
BARRIER FORCE - UPPER RIGHT (KN) vs TIME (ms)



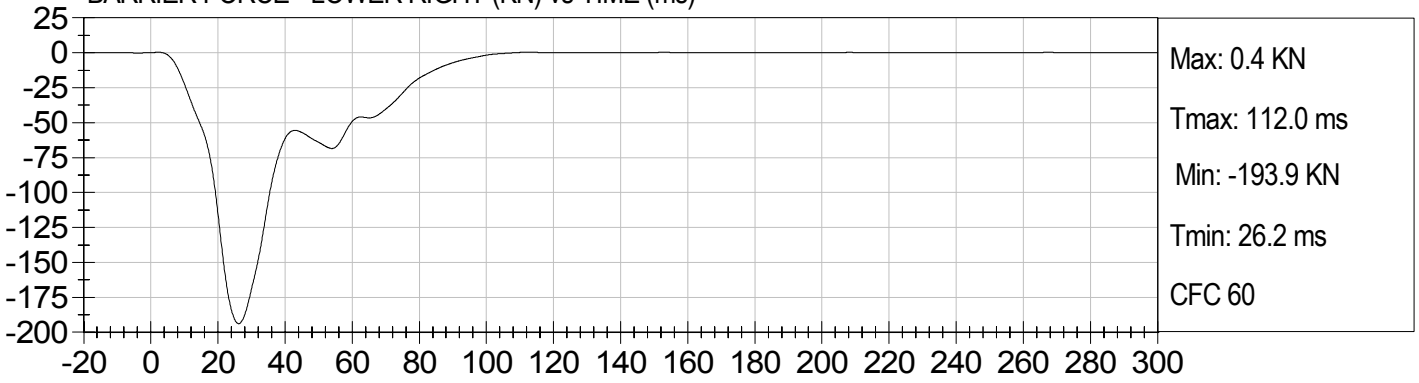
BARRIER FORCE - LOWER LEFT (KN) vs TIME (ms)



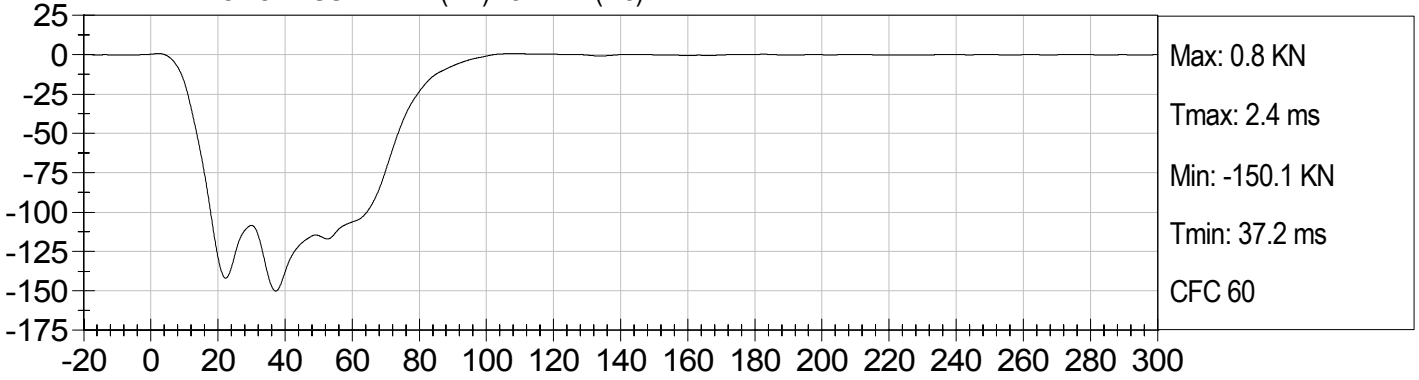
BARRIER FORCE - LOWER CENTER (KN) vs TIME (ms)



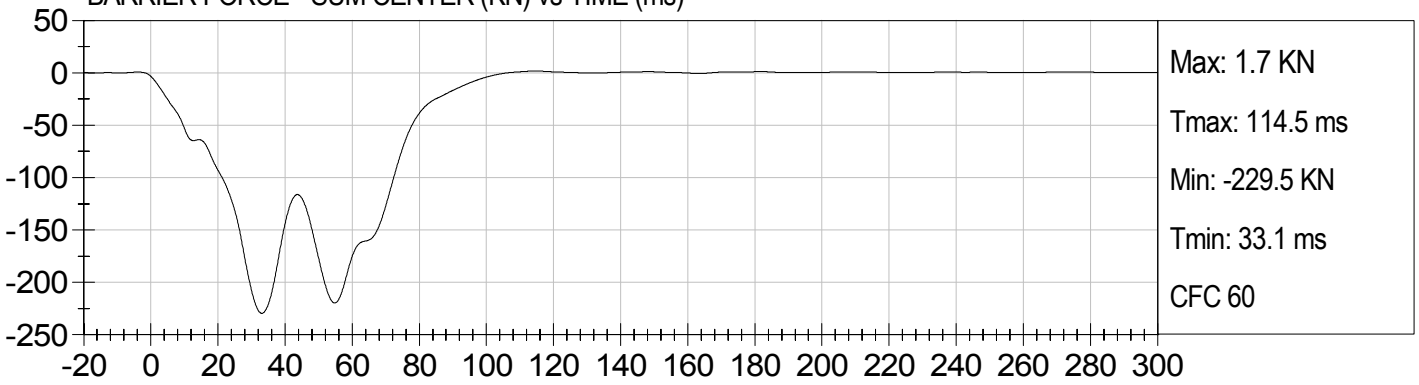
BARRIER FORCE - LOWER RIGHT (KN) vs TIME (ms)



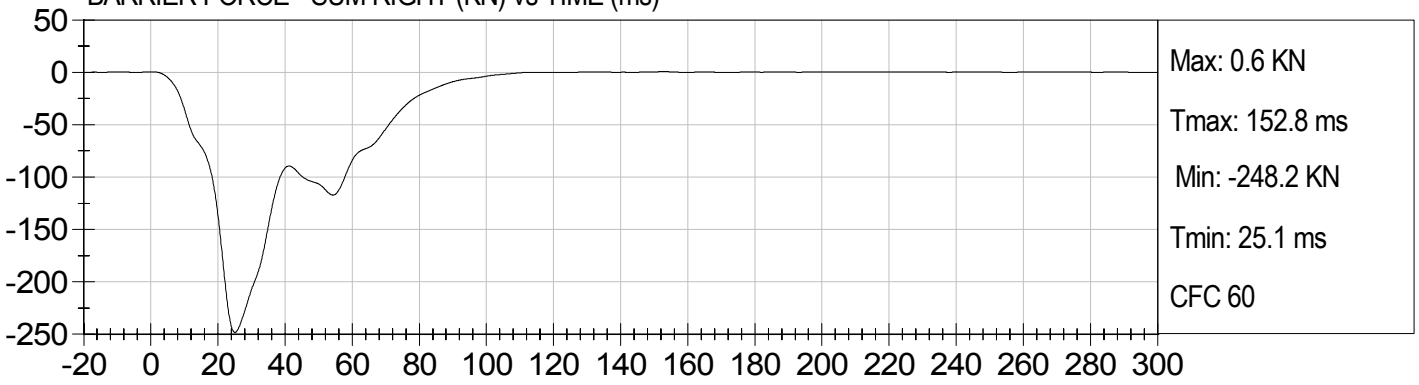
BARRIER FORCE - SUM LEFT (KN) vs TIME (ms)



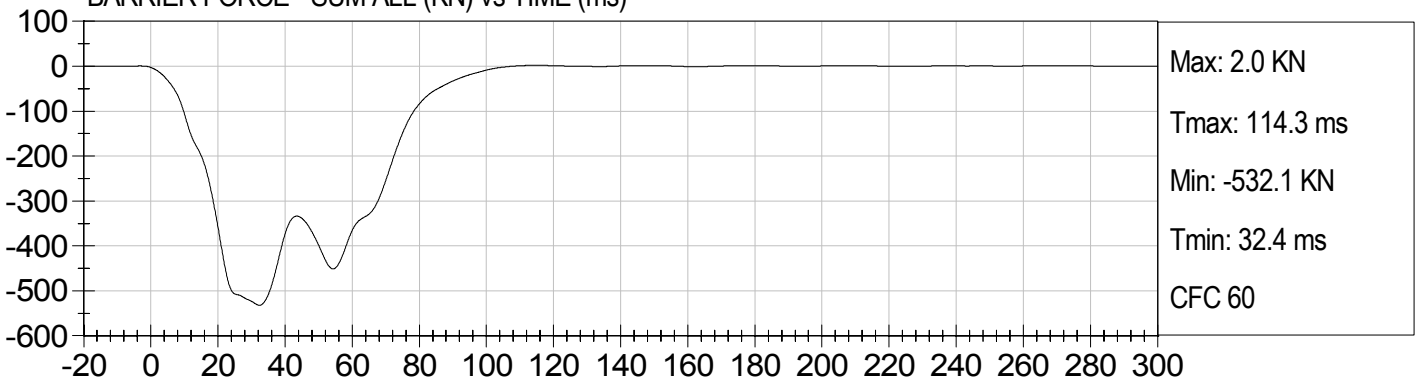
BARRIER FORCE - SUM CENTER (KN) vs TIME (ms)



BARRIER FORCE - SUM RIGHT (KN) vs TIME (ms)



BARRIER FORCE - SUM ALL (KN) vs TIME (ms)



APPENDIX B

LOW RISK TEST DATA

TABLE OF DATA PLOTS

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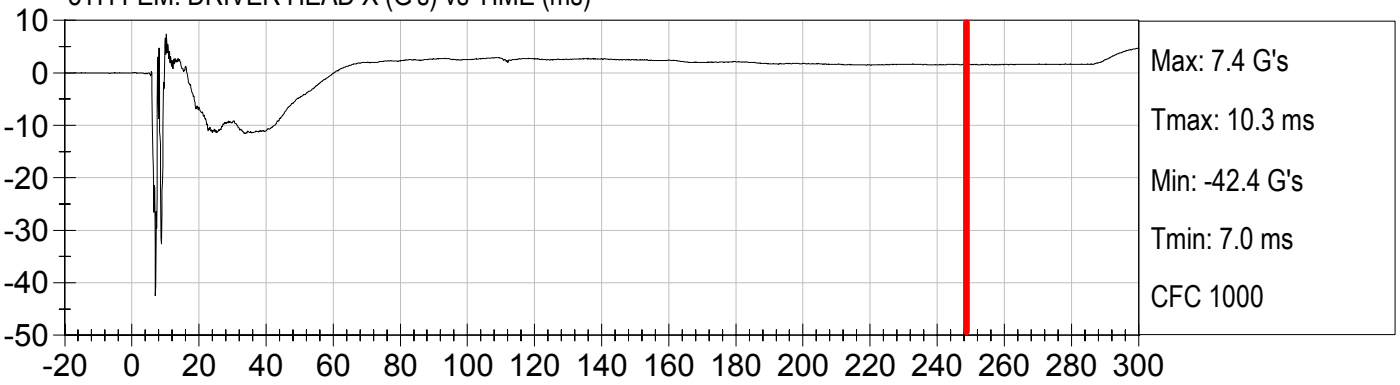
LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

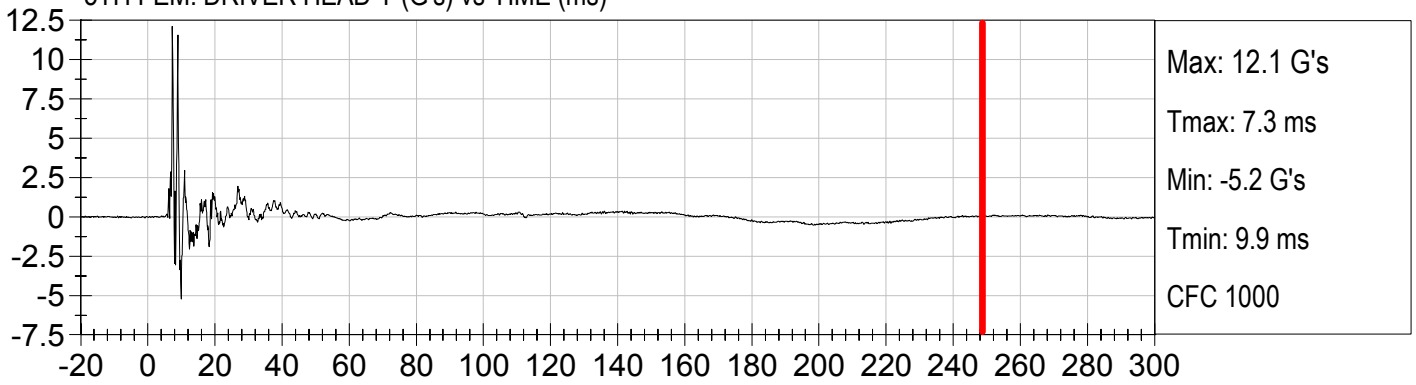
Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

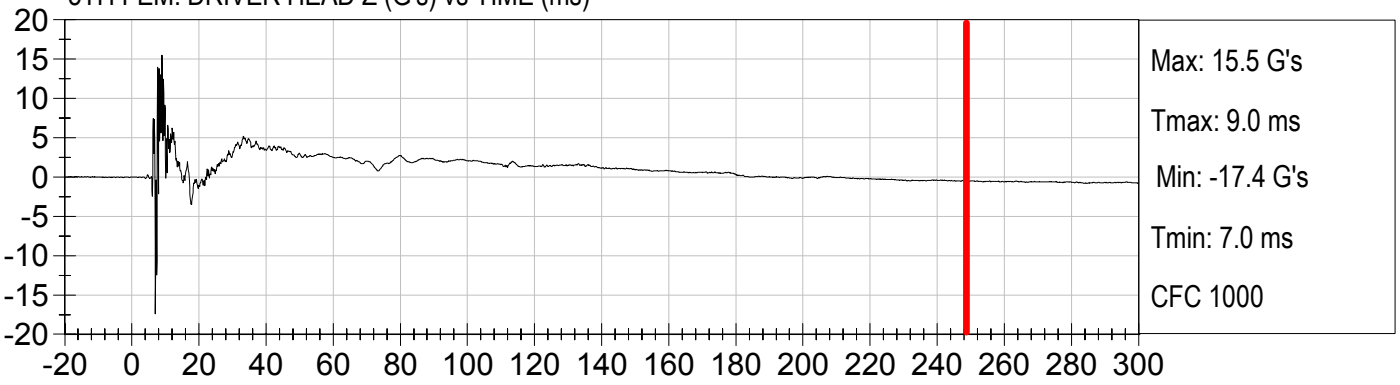
5TH FEM. DRIVER HEAD X (G's) vs TIME (ms)



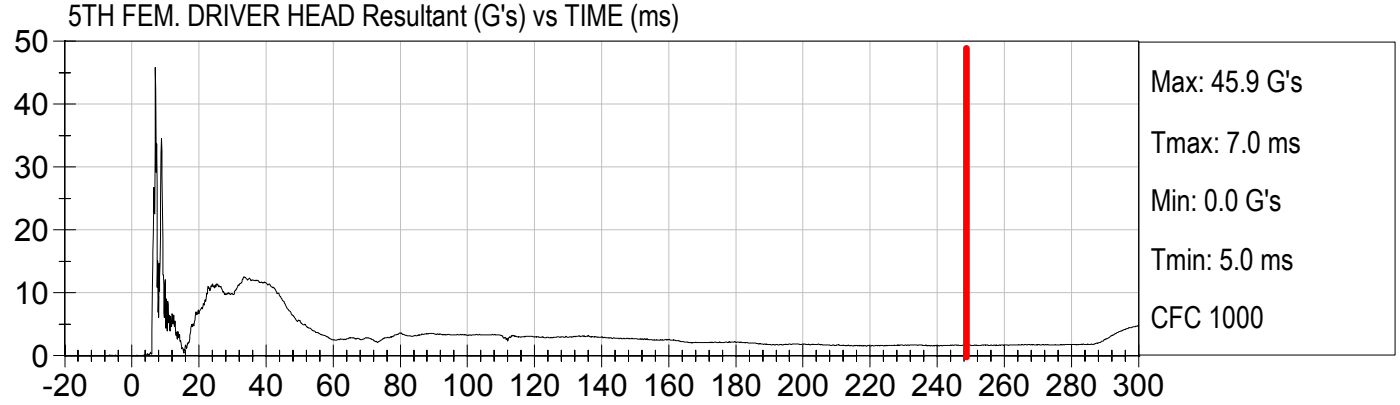
5TH FEM. DRIVER HEAD Y (G's) vs TIME (ms)



5TH FEM. DRIVER HEAD Z (G's) vs TIME (ms)



5TH FEM. DRIVER HEAD Resultant (G's) vs TIME (ms)

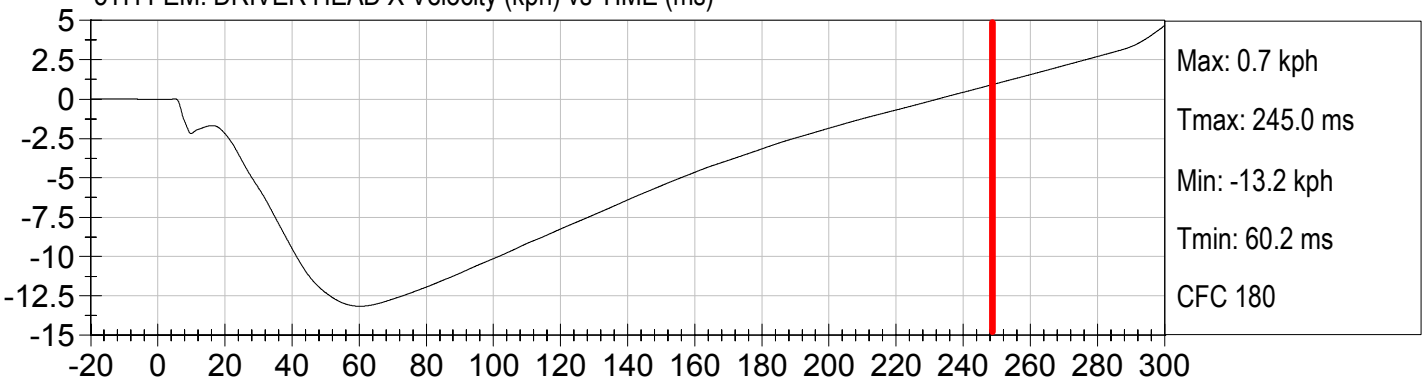


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

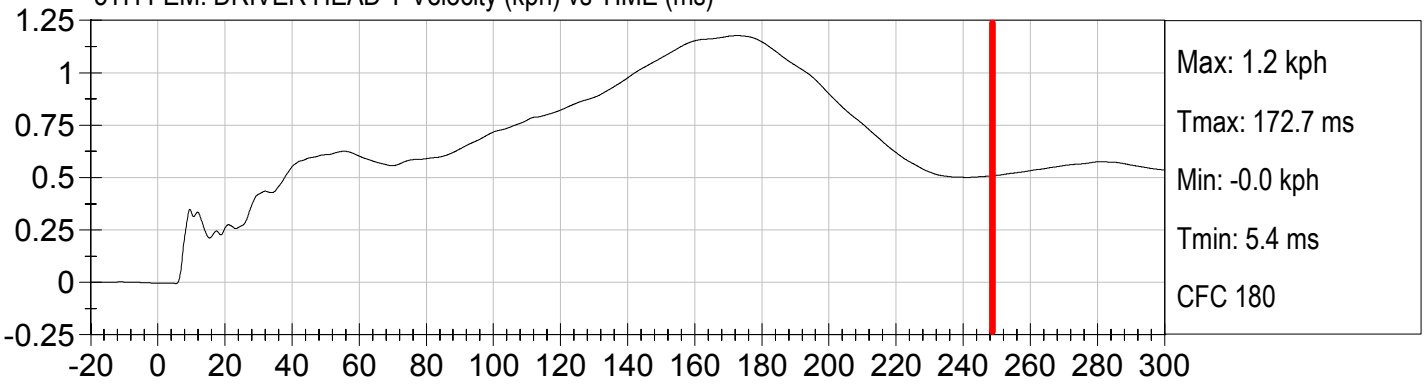
Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

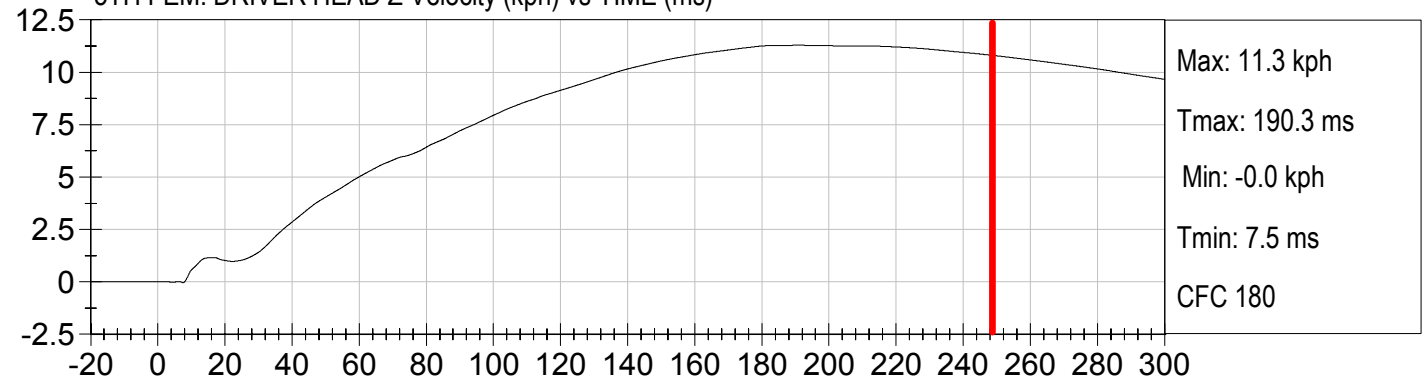
5TH FEM. DRIVER HEAD X Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER HEAD Y Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER HEAD Z Velocity (kph) vs TIME (ms)

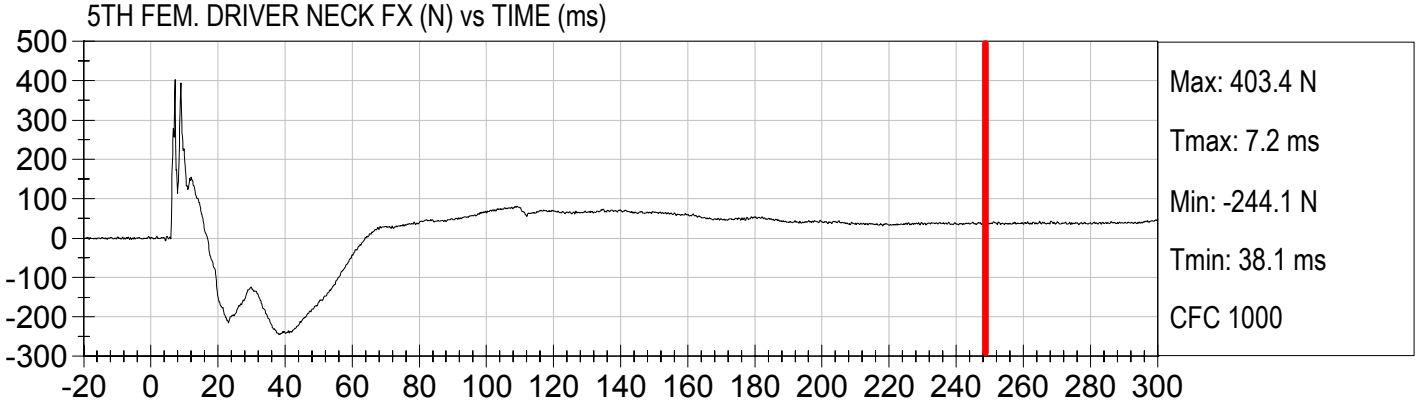


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

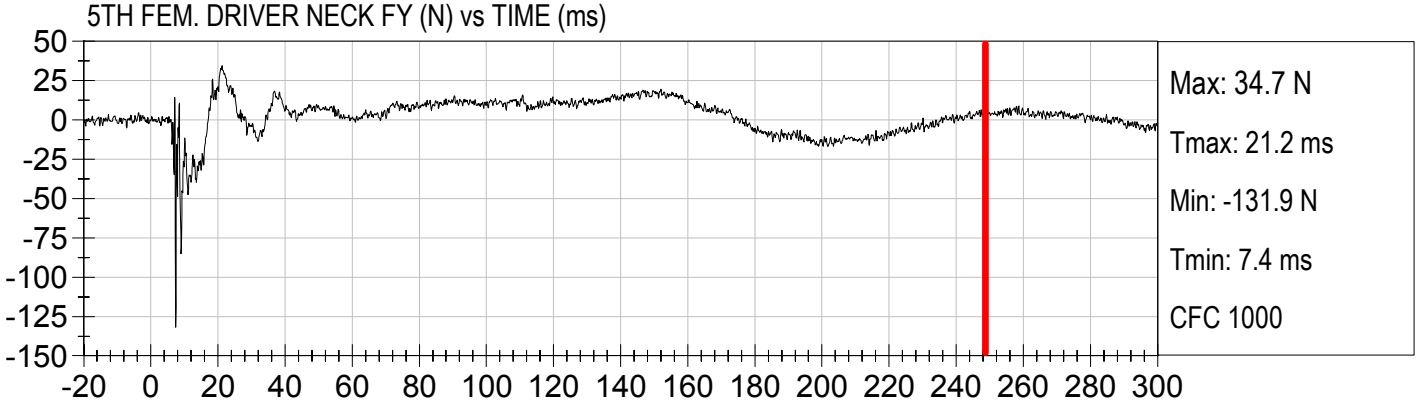
Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

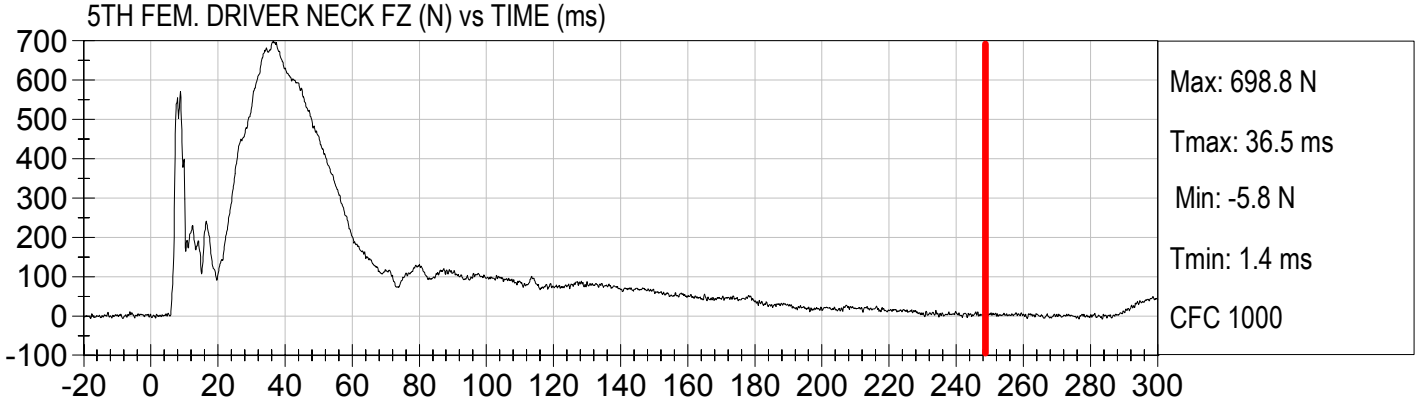
5TH FEM. DRIVER NECK FX (N) vs TIME (ms)



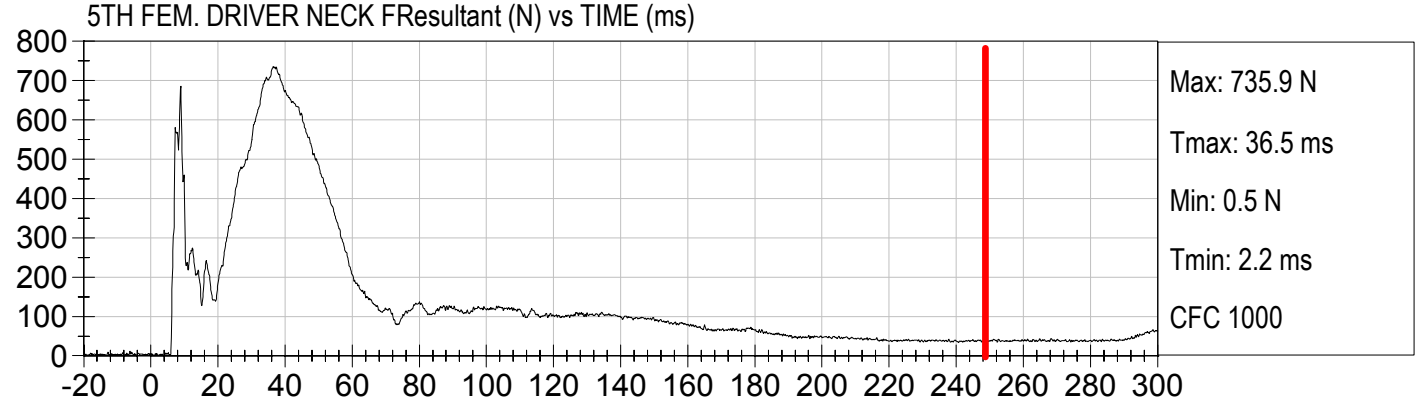
5TH FEM. DRIVER NECK FY (N) vs TIME (ms)



5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)



5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)

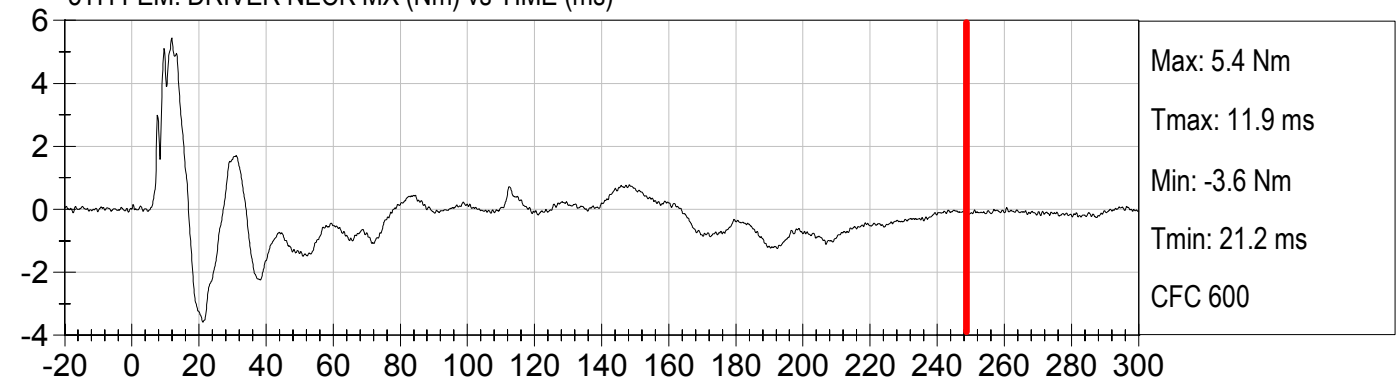


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

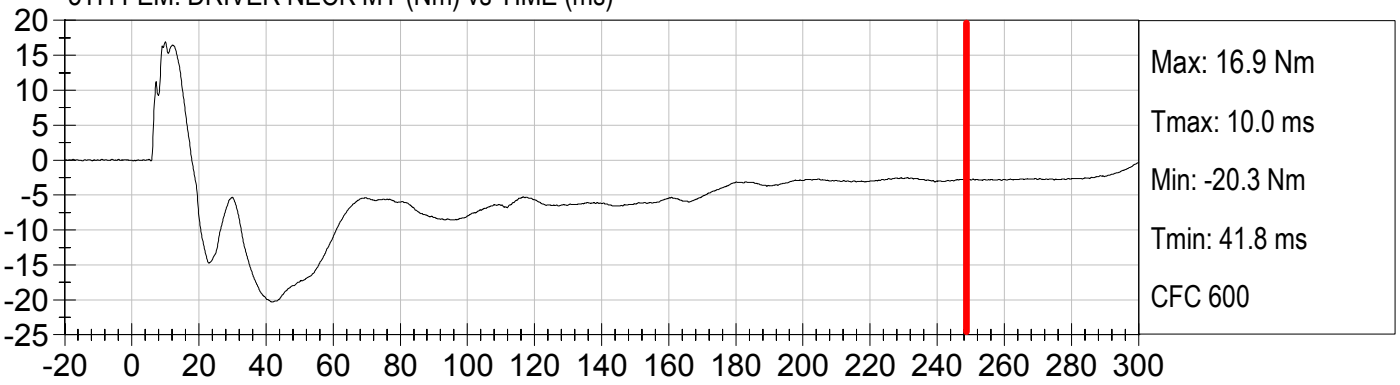
Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

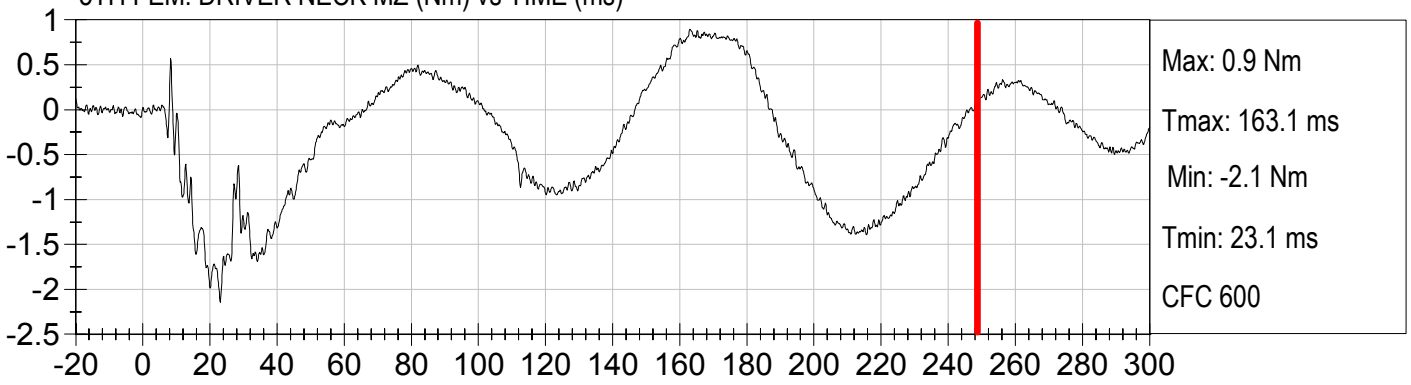
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



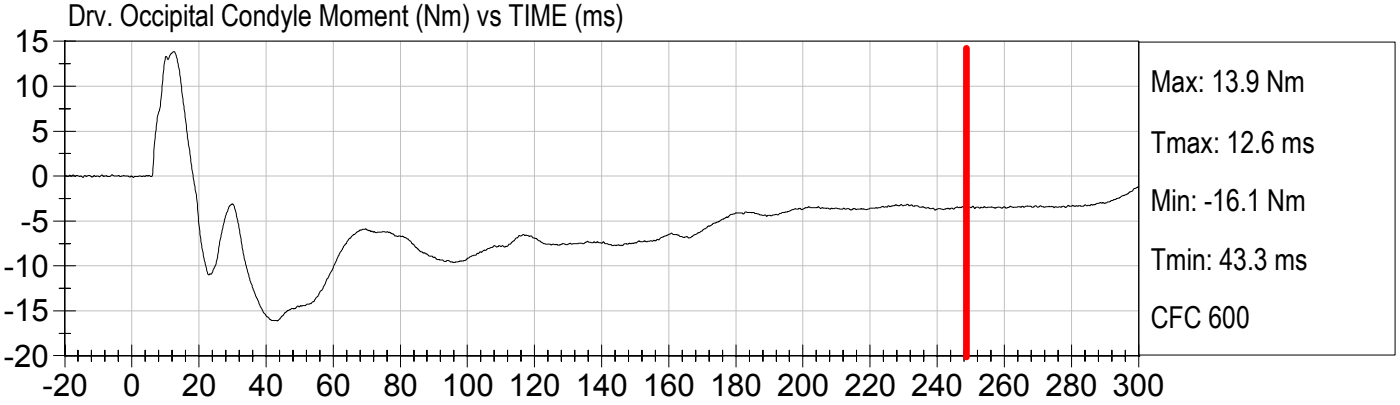
5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)



5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)



Drv. Occipital Condyle Moment (Nm) vs TIME (ms)

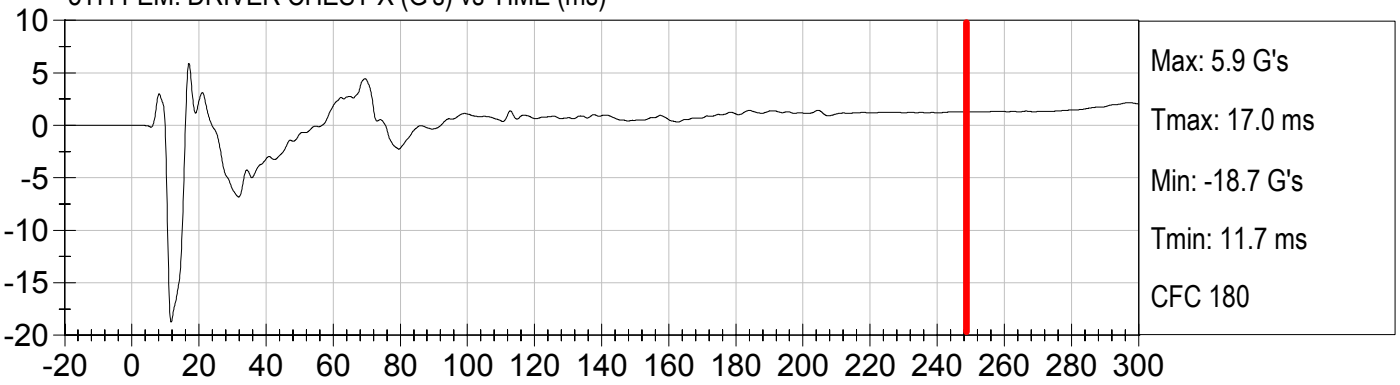


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

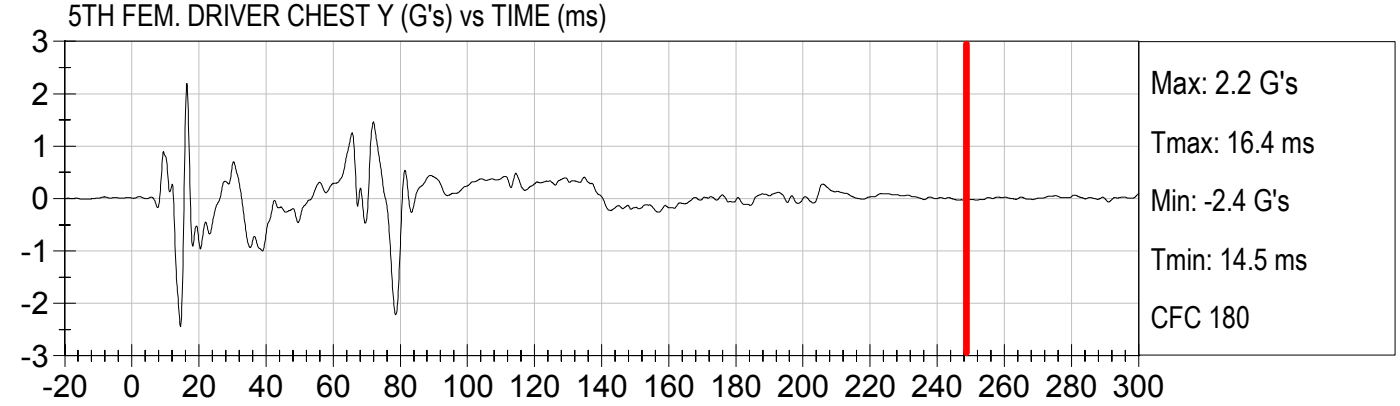
Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

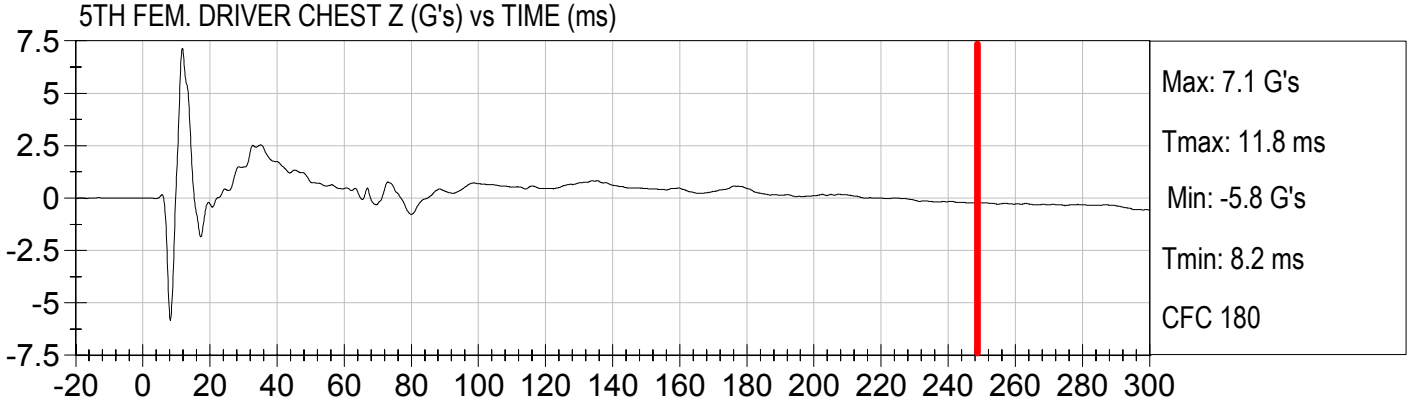
5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)



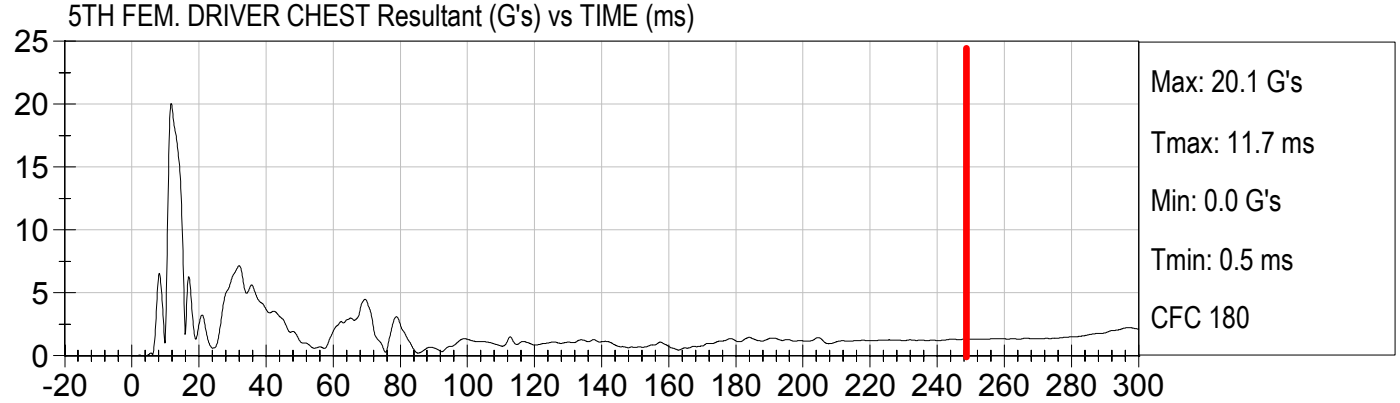
5TH FEM. DRIVER CHEST Y (G's) vs TIME (ms)



5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)



5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)

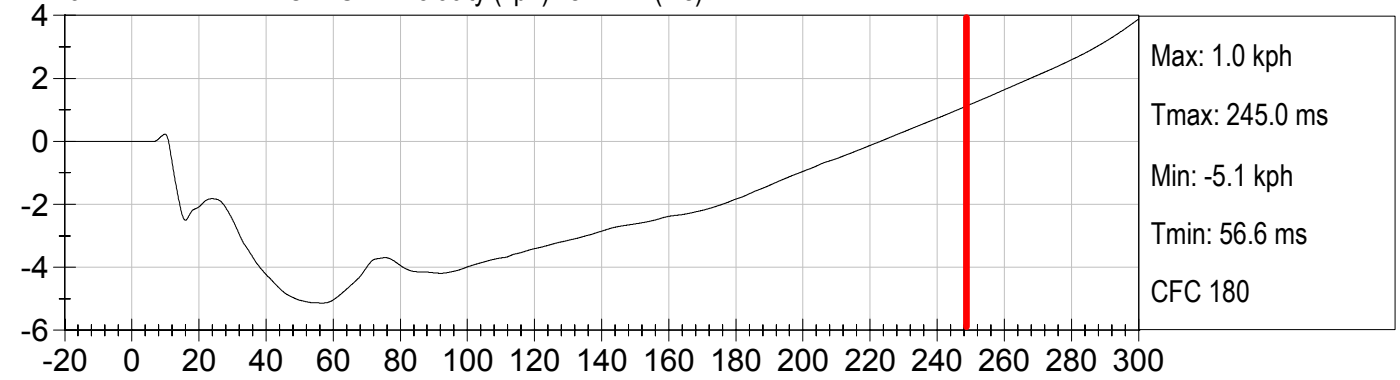


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

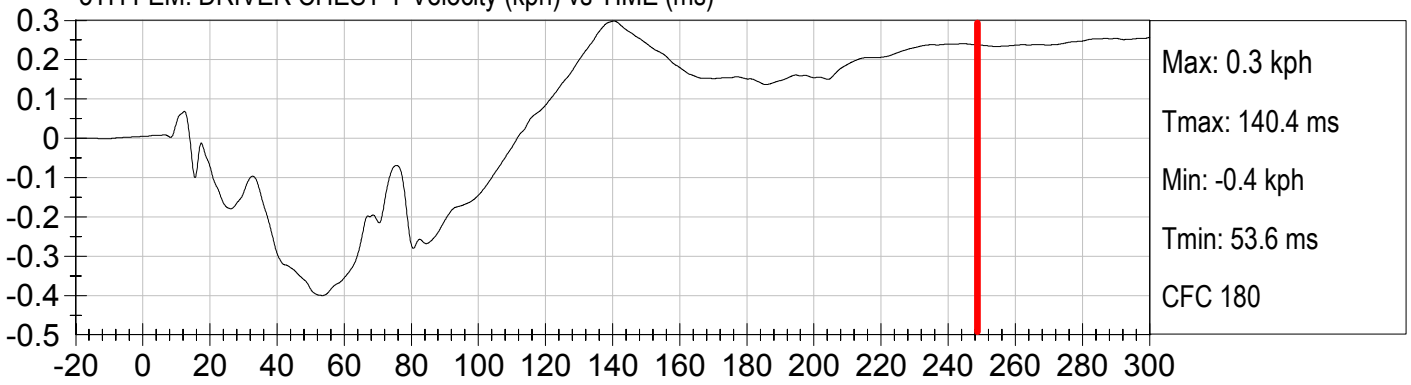
Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

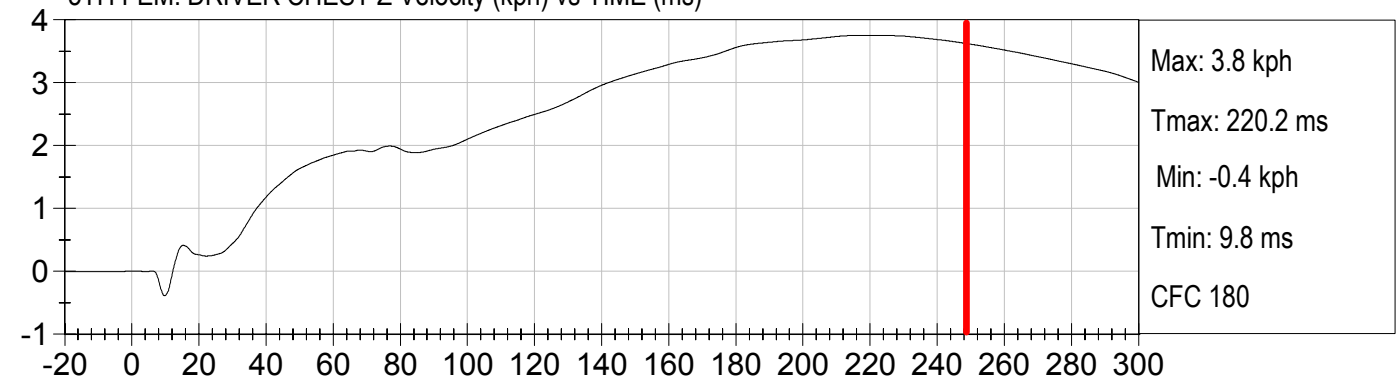
5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)



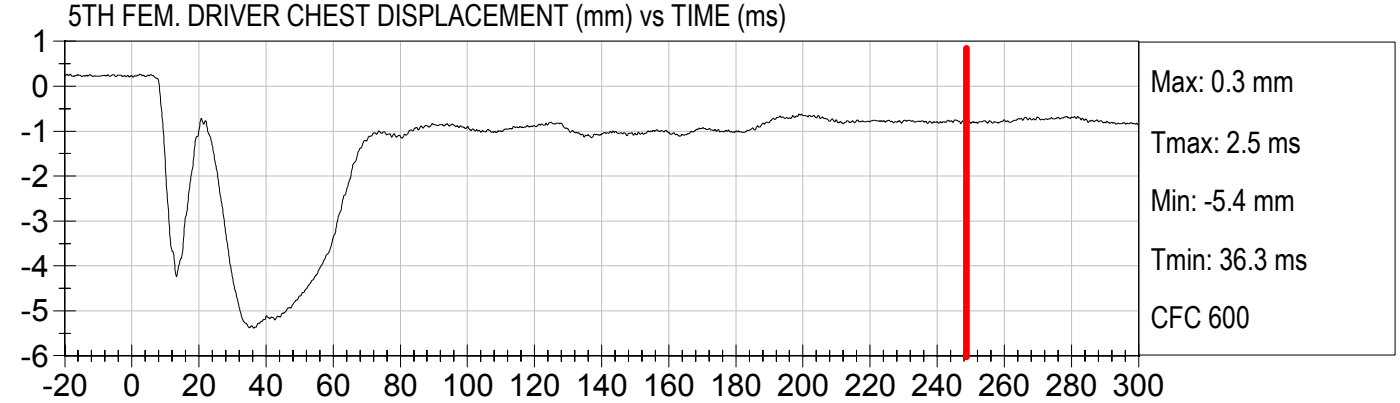
5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)

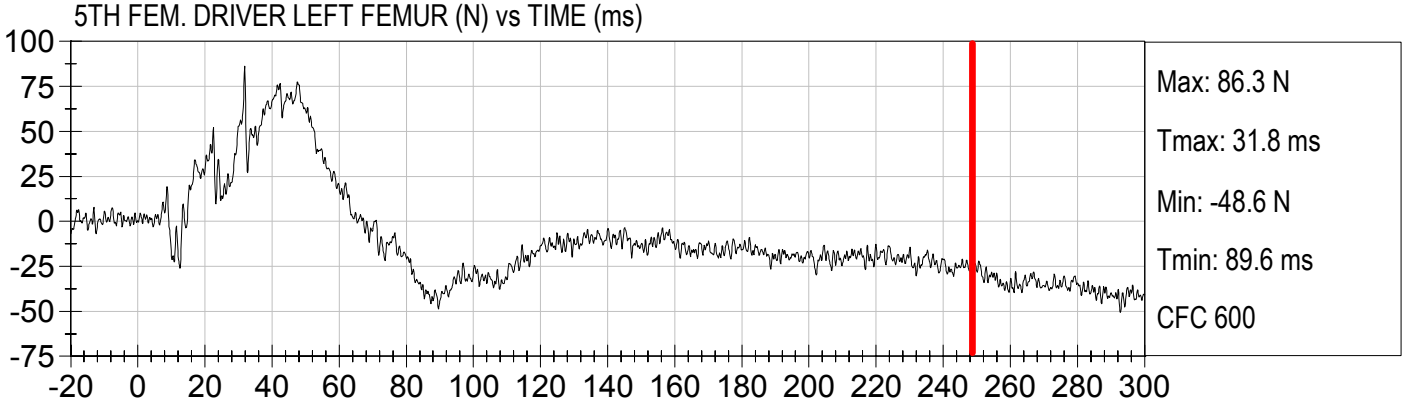


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

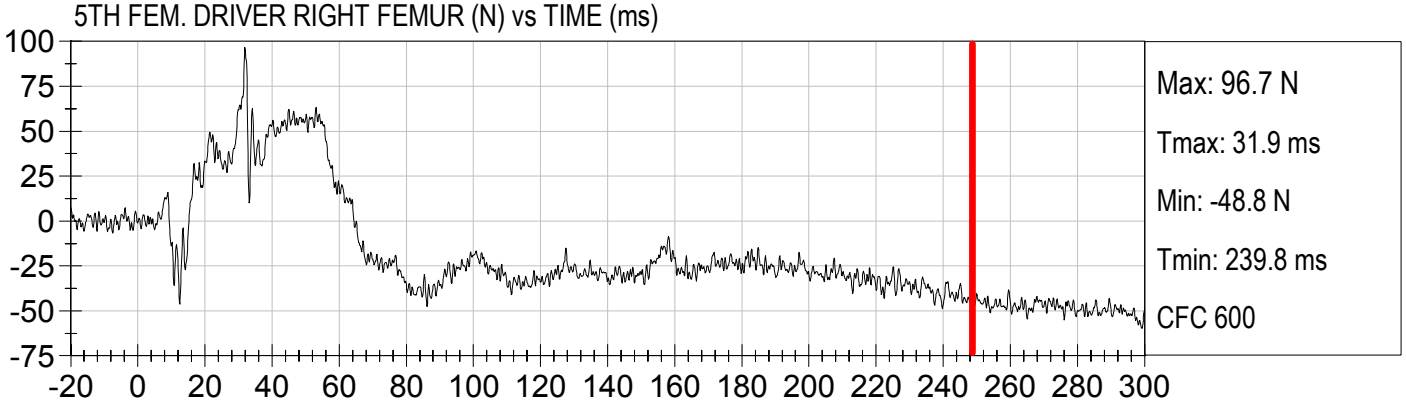
Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

5TH FEM. DRIVER LEFT FEMUR (N) vs TIME (ms)



5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)

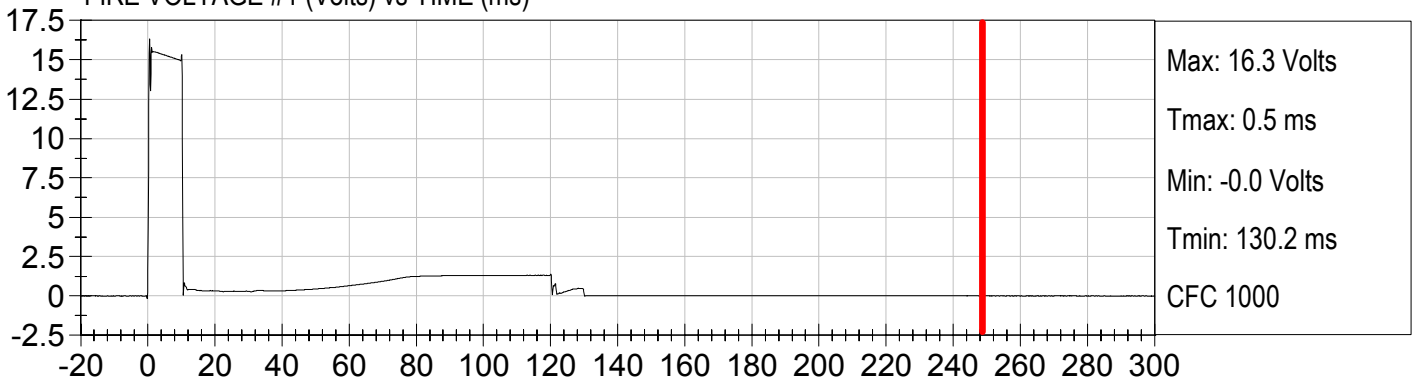


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

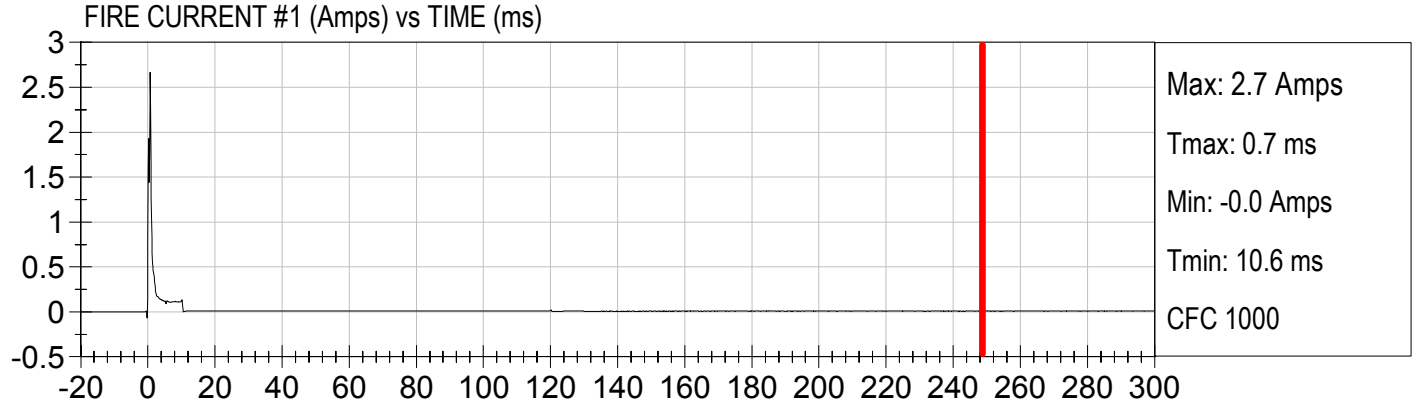
Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

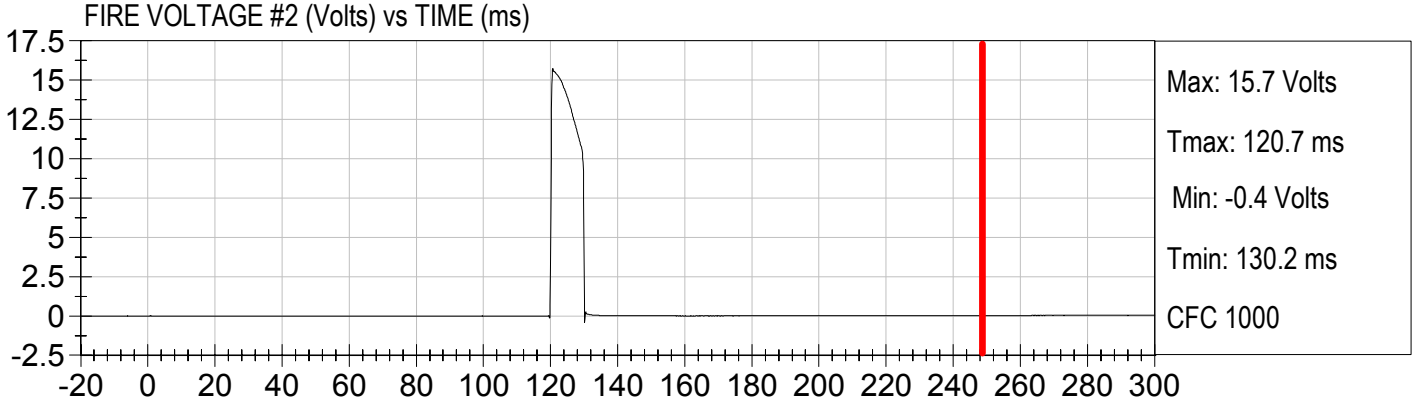
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



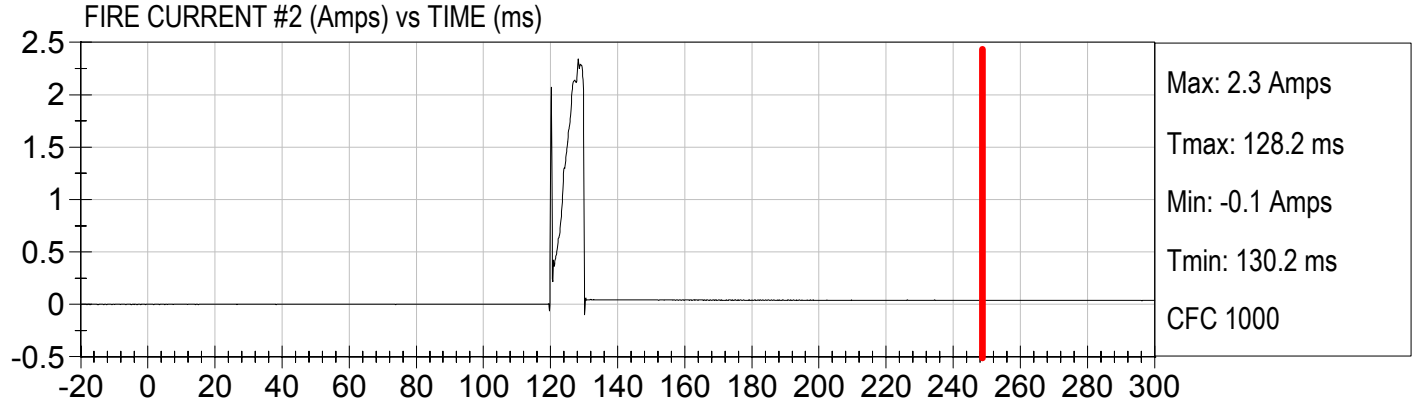
FIRE CURRENT #1 (Amps) vs TIME (ms)



FIRE VOLTAGE #2 (Volts) vs TIME (ms)



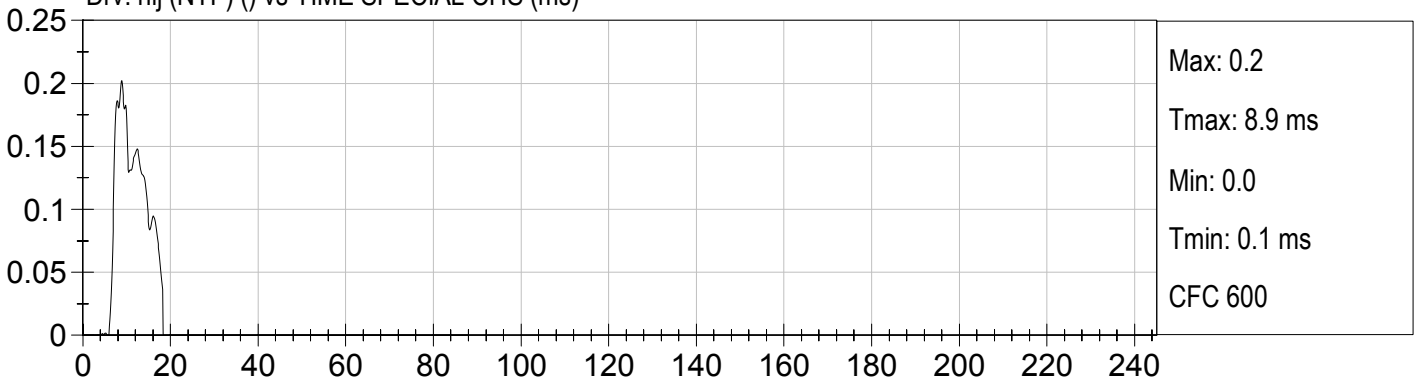
FIRE CURRENT #2 (Amps) vs TIME (ms)



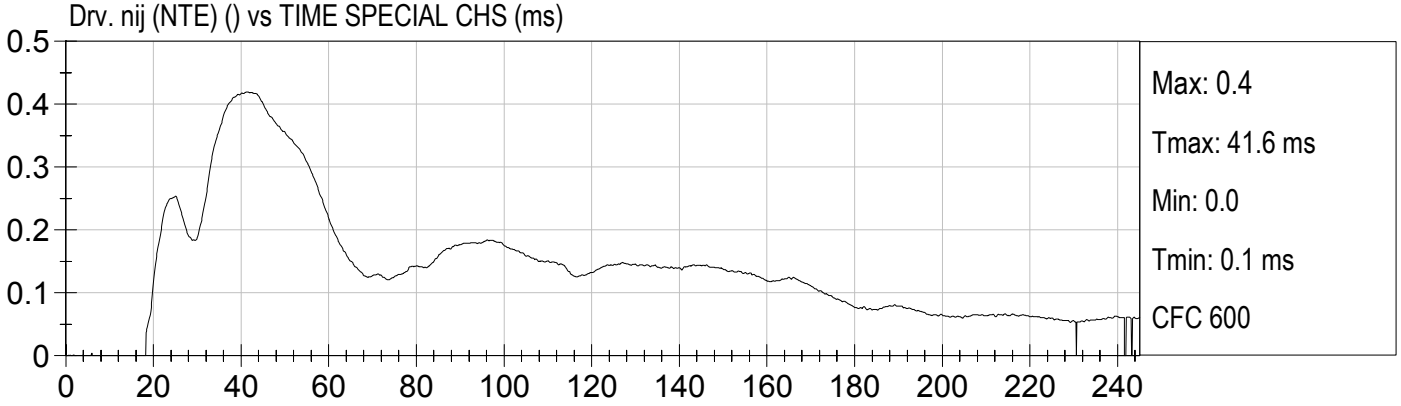
LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P1)

Test Date: 05/18/05
Speed: 0.0 mph (0.0 km/h)

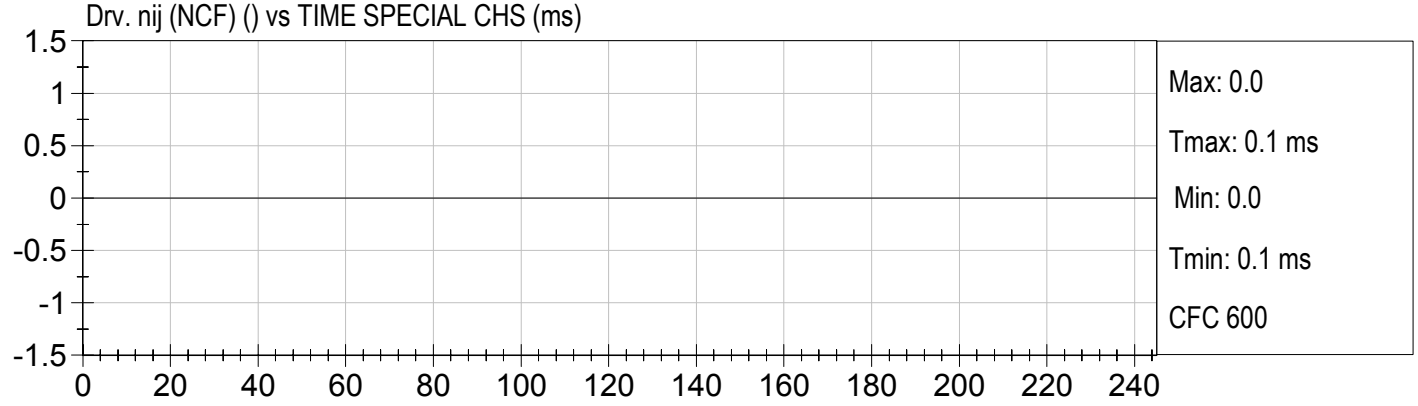
Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)



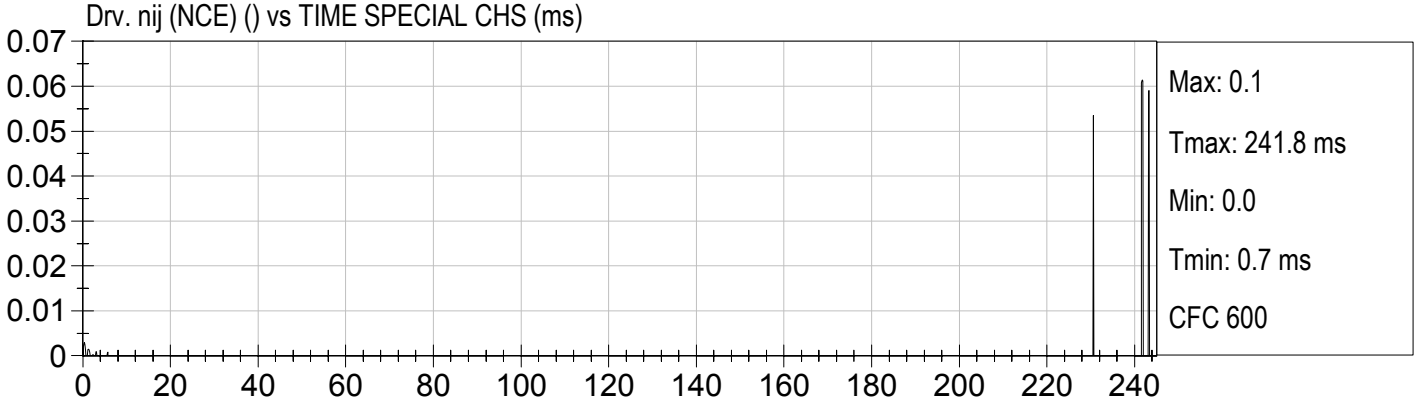
Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)



Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)



Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)

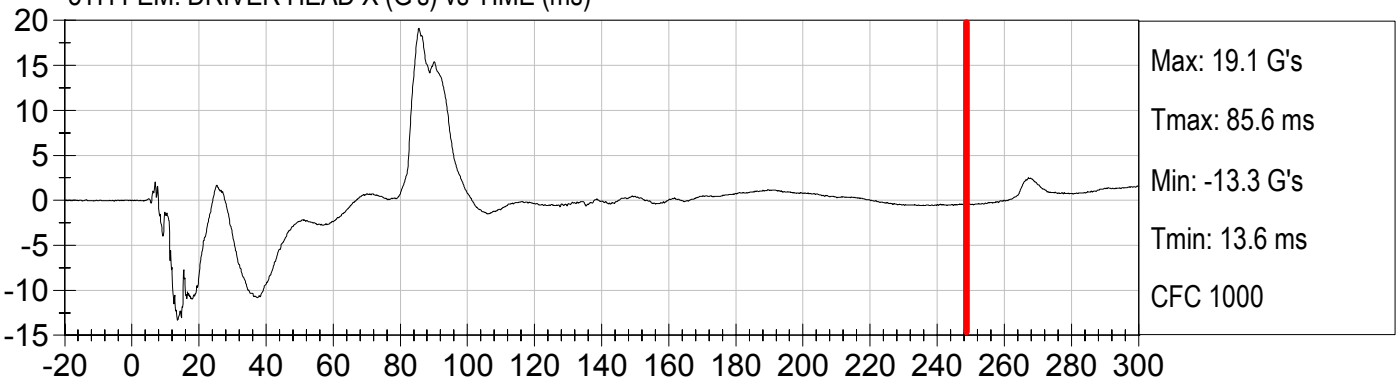


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

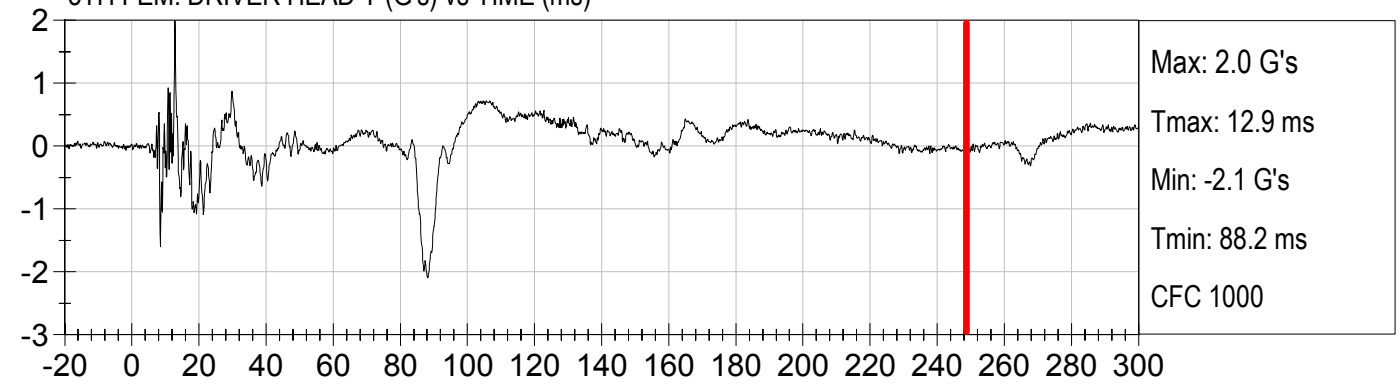
Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

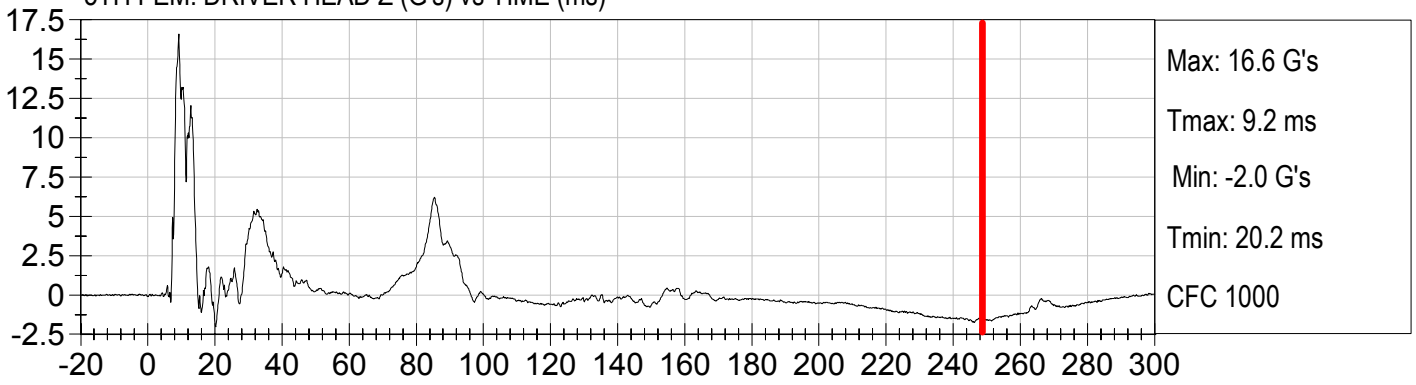
5TH FEM. DRIVER HEAD X (G's) vs TIME (ms)



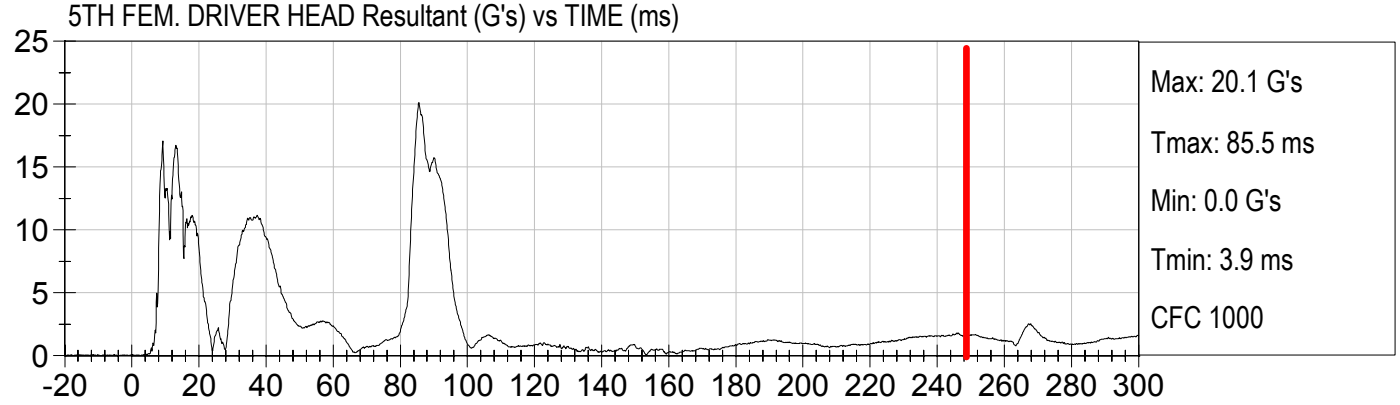
5TH FEM. DRIVER HEAD Y (G's) vs TIME (ms)



5TH FEM. DRIVER HEAD Z (G's) vs TIME (ms)



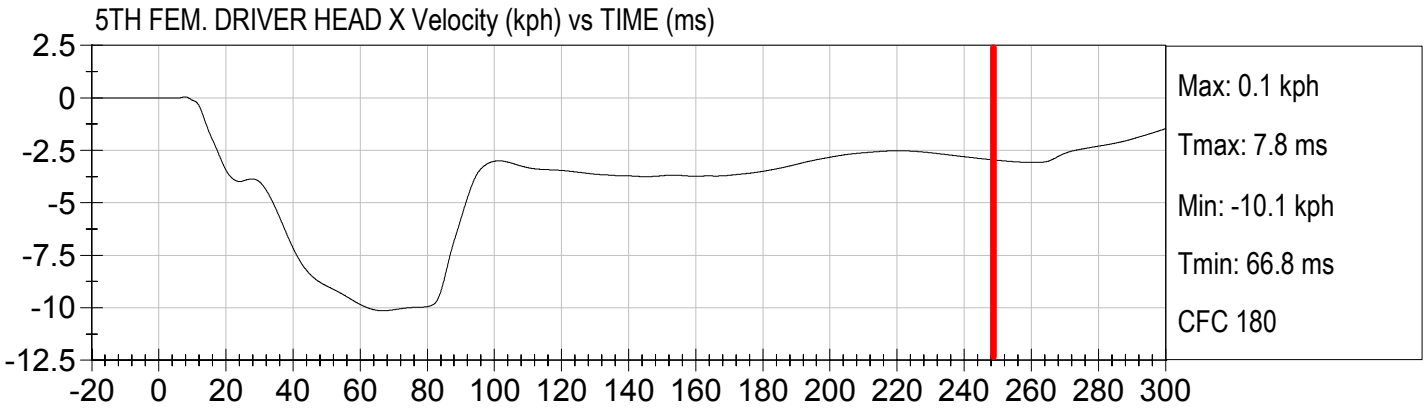
5TH FEM. DRIVER HEAD Resultant (G's) vs TIME (ms)

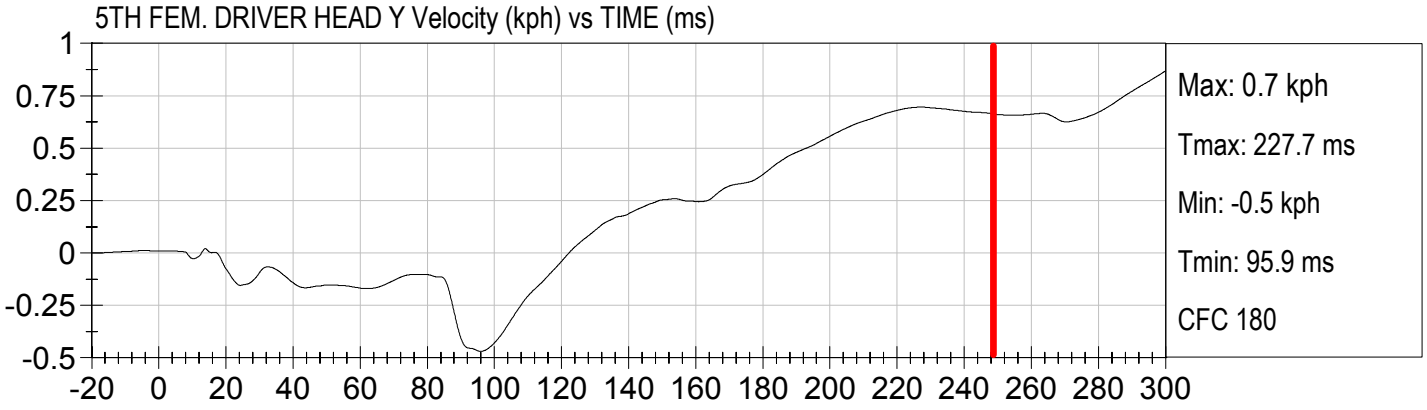


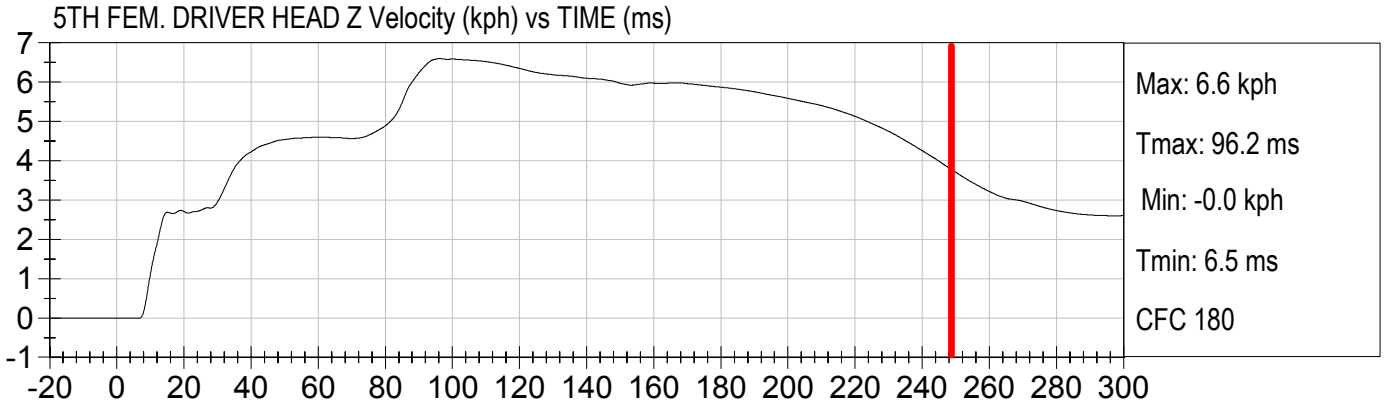
LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms





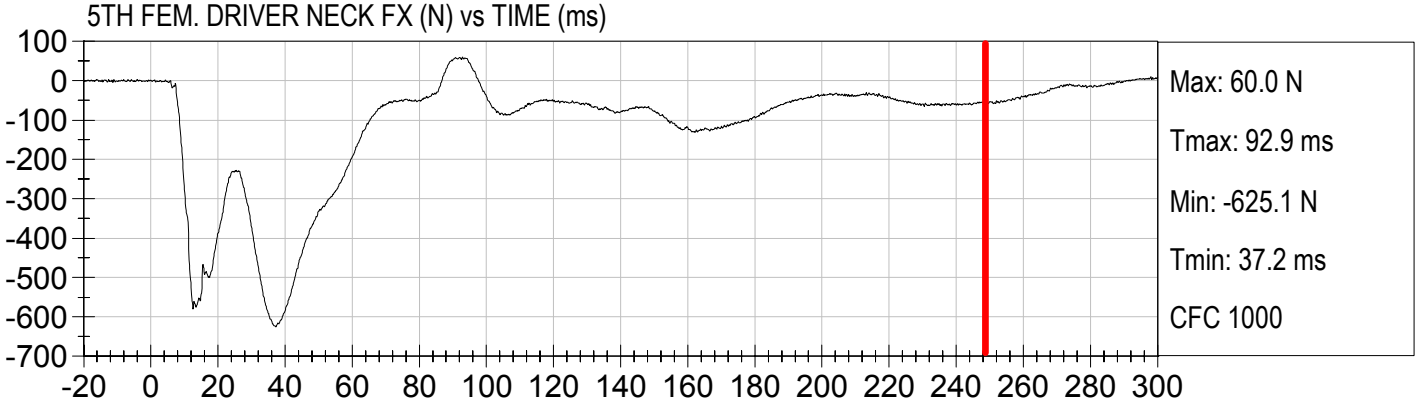


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

5TH FEM. DRIVER NECK FX (N) vs TIME (ms)



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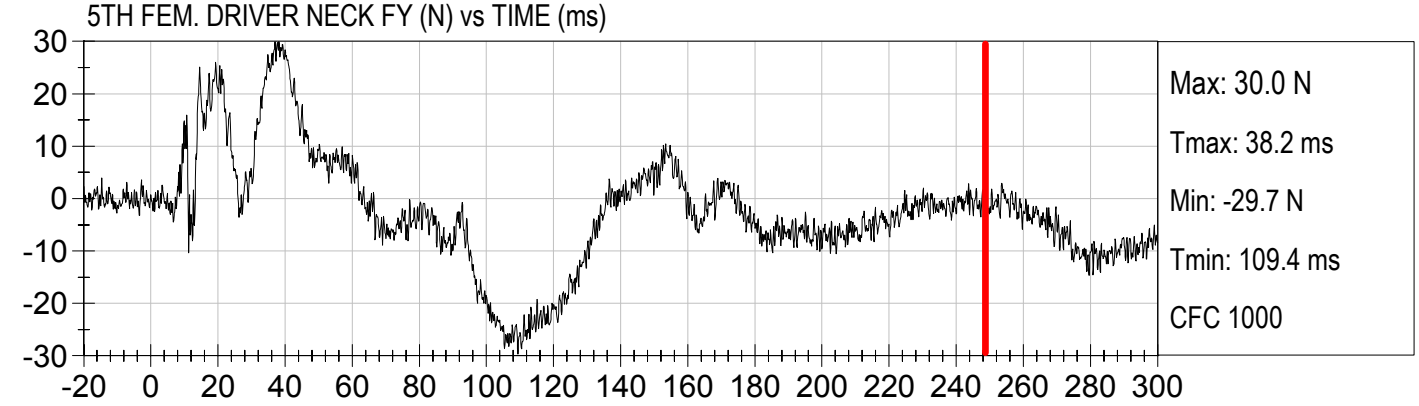
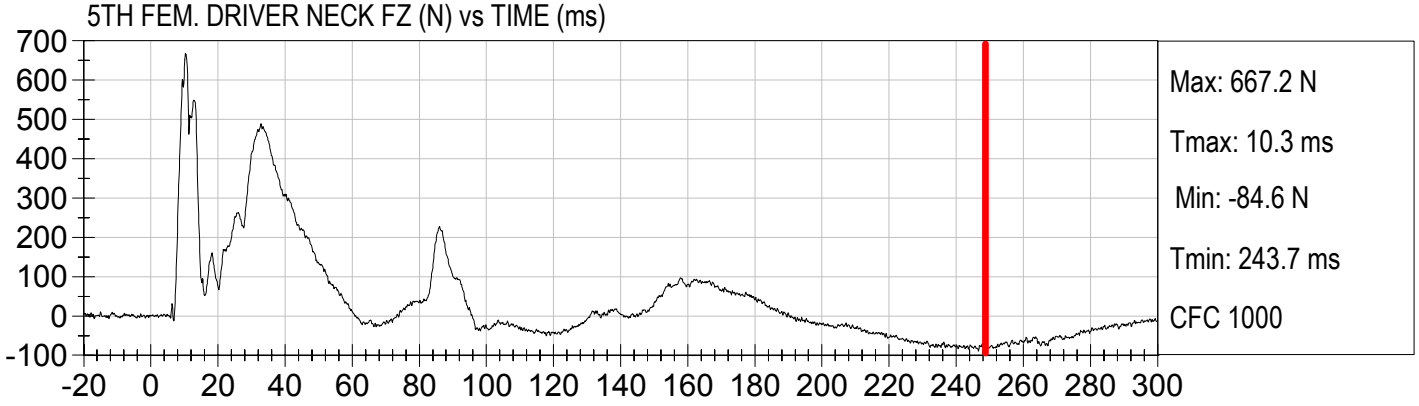
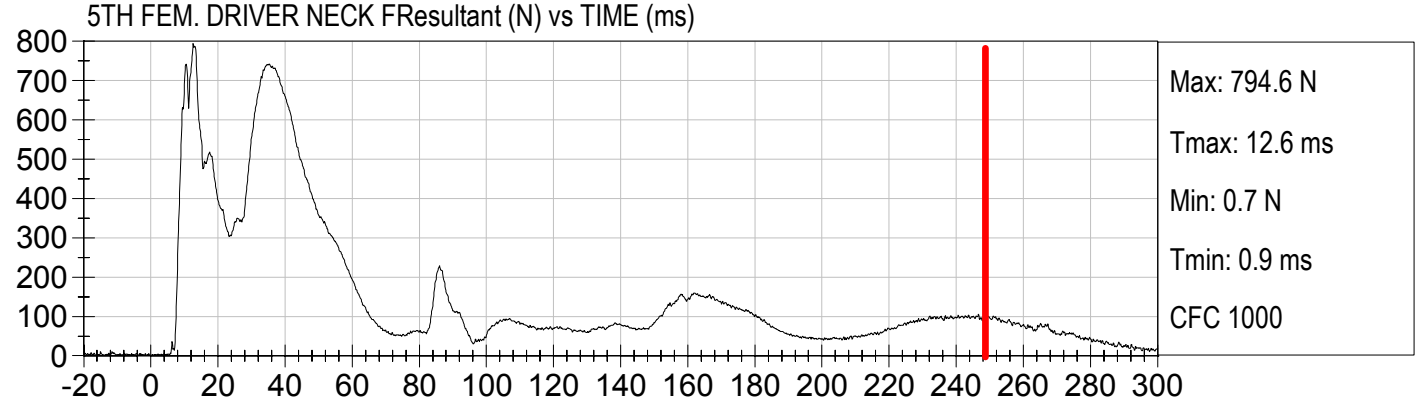


5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)



5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)

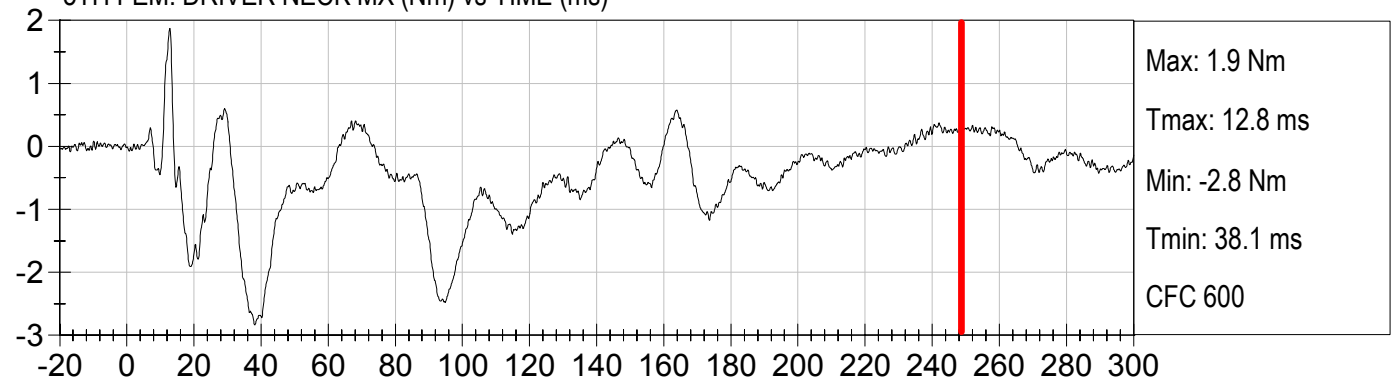


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

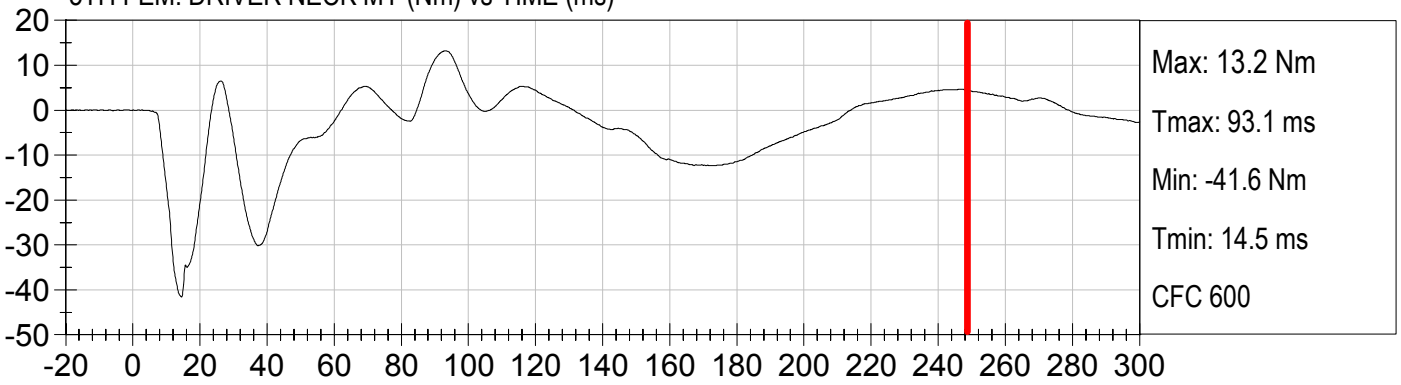
Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

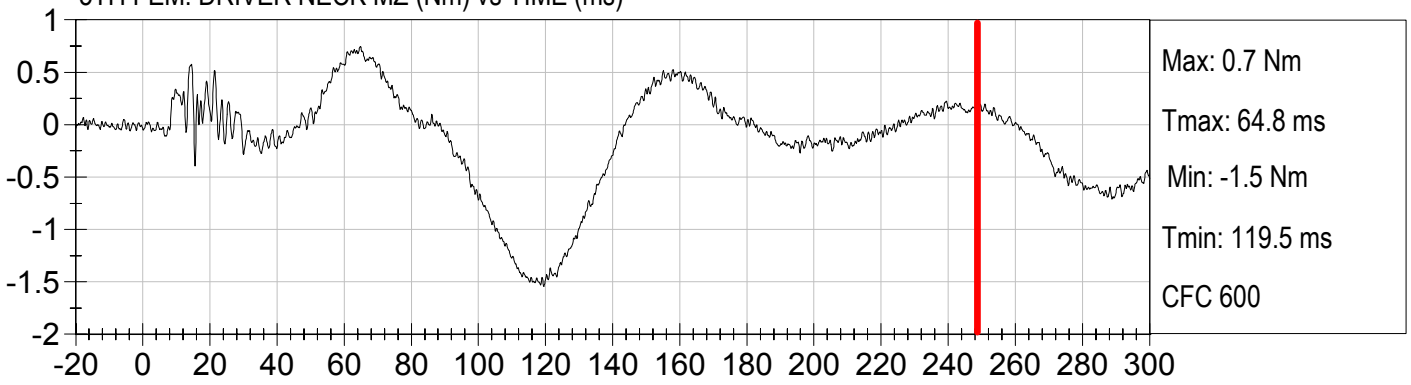
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



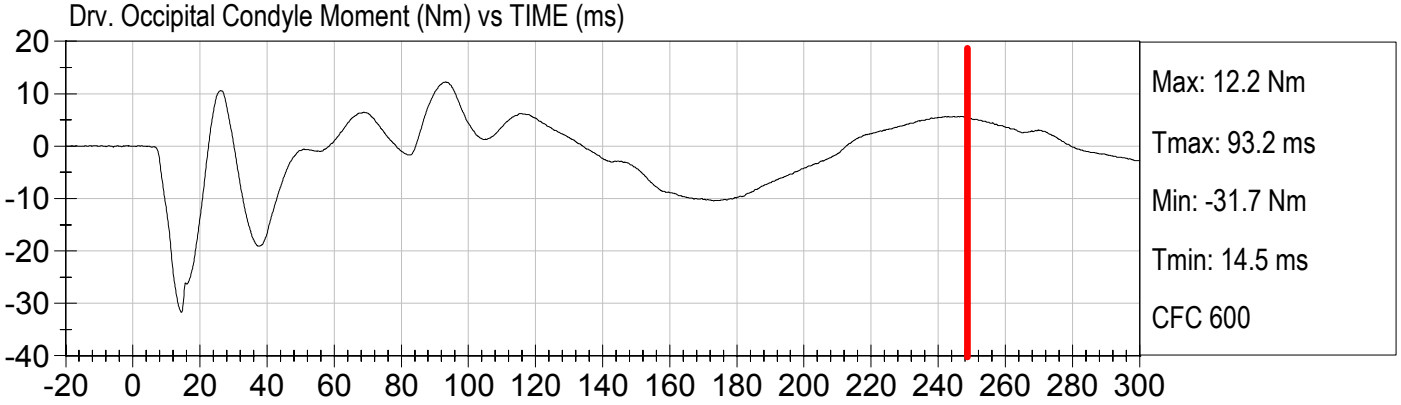
5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)



5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)



Drv. Occipital Condyle Moment (Nm) vs TIME (ms)

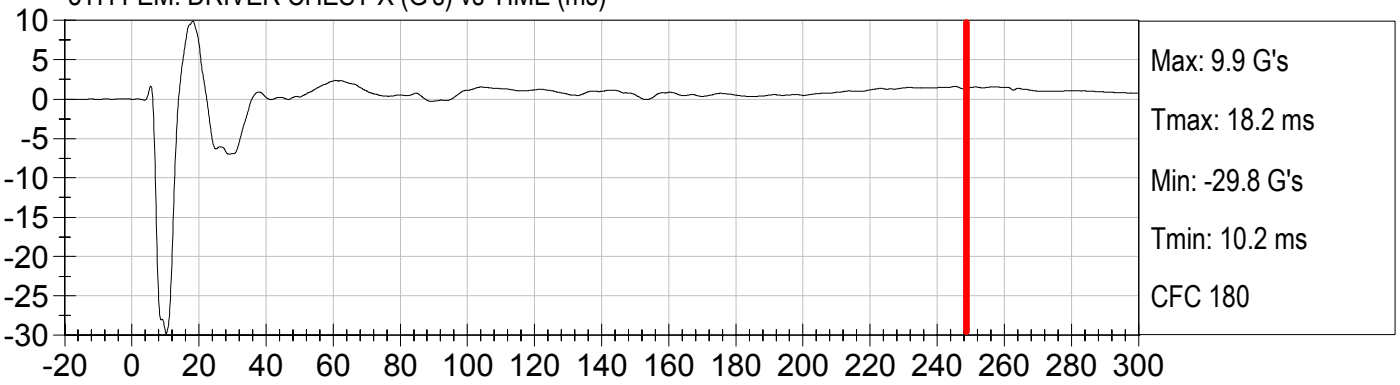


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

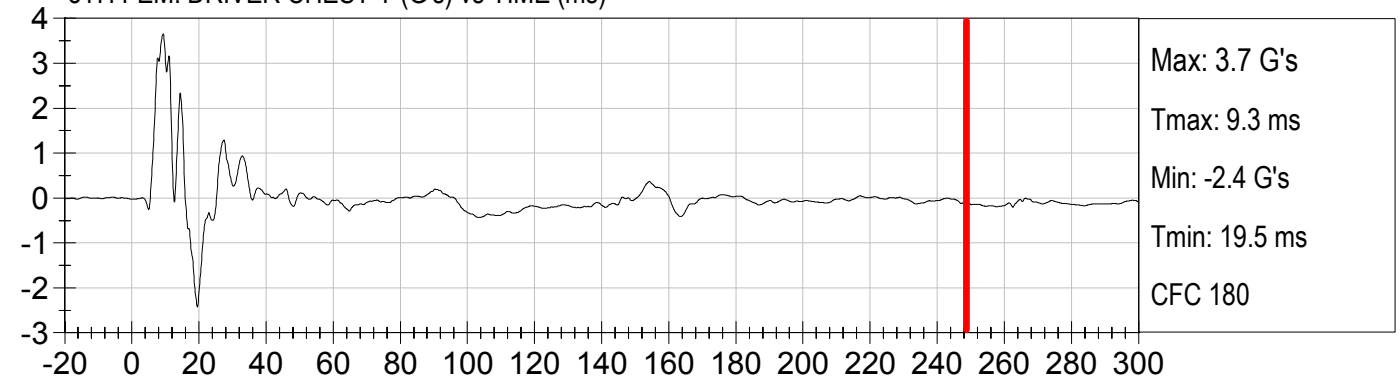
Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

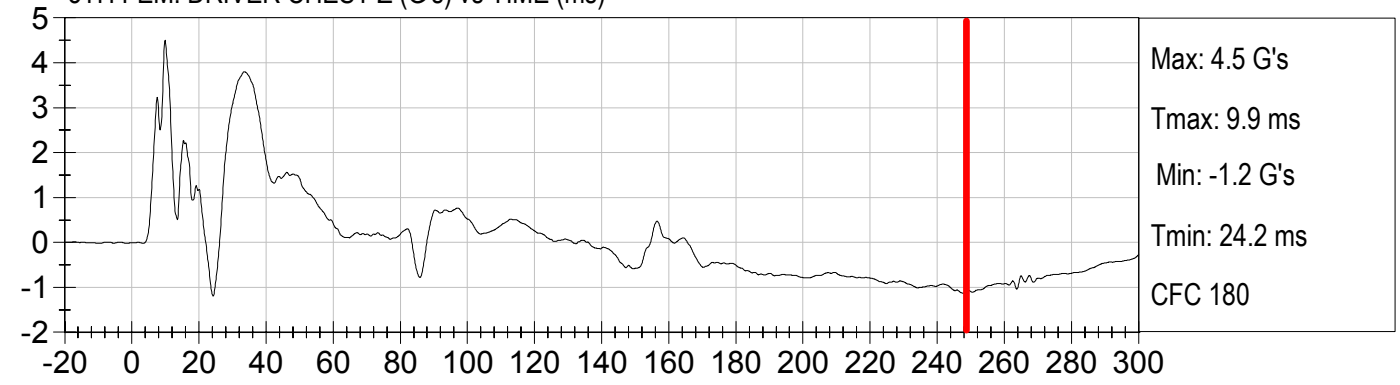
5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)



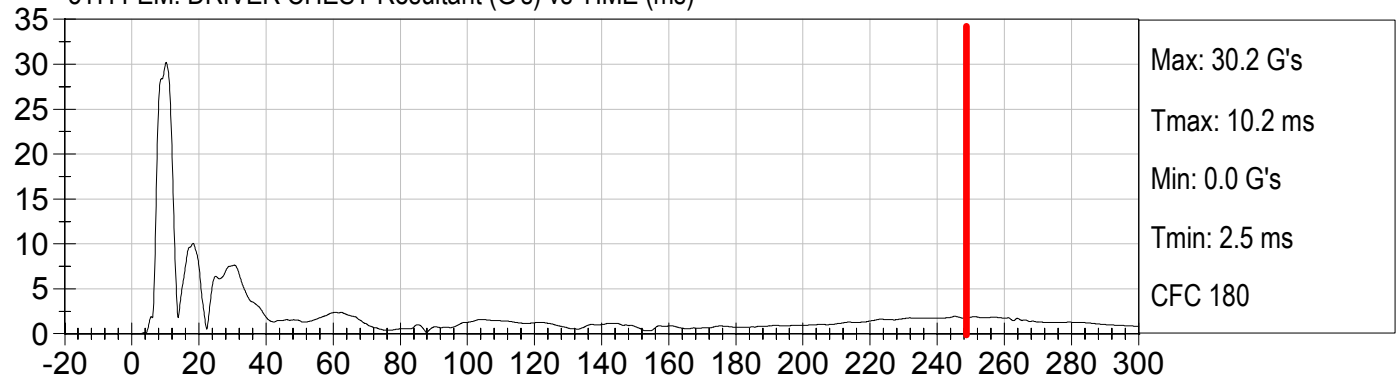
5TH FEM. DRIVER CHEST Y (G's) vs TIME (ms)



5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)



5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)

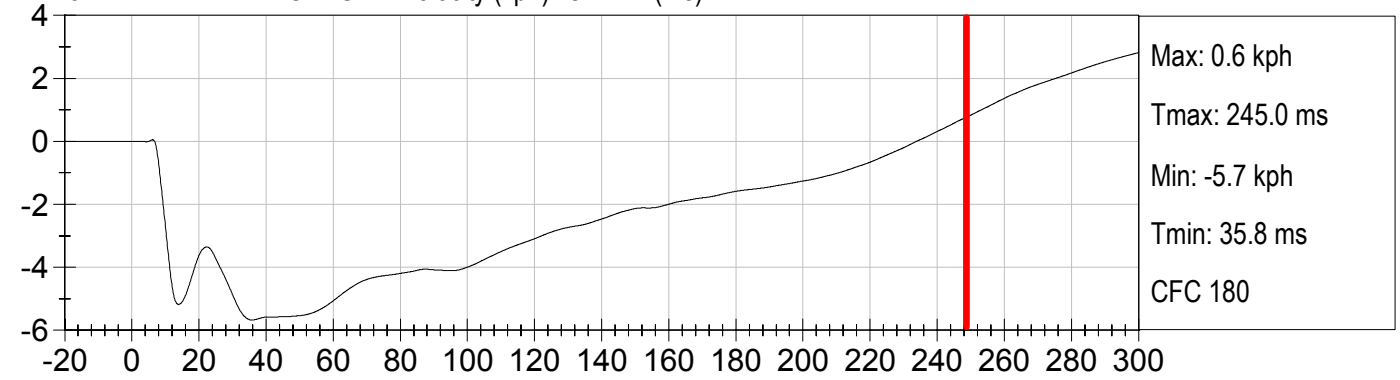


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

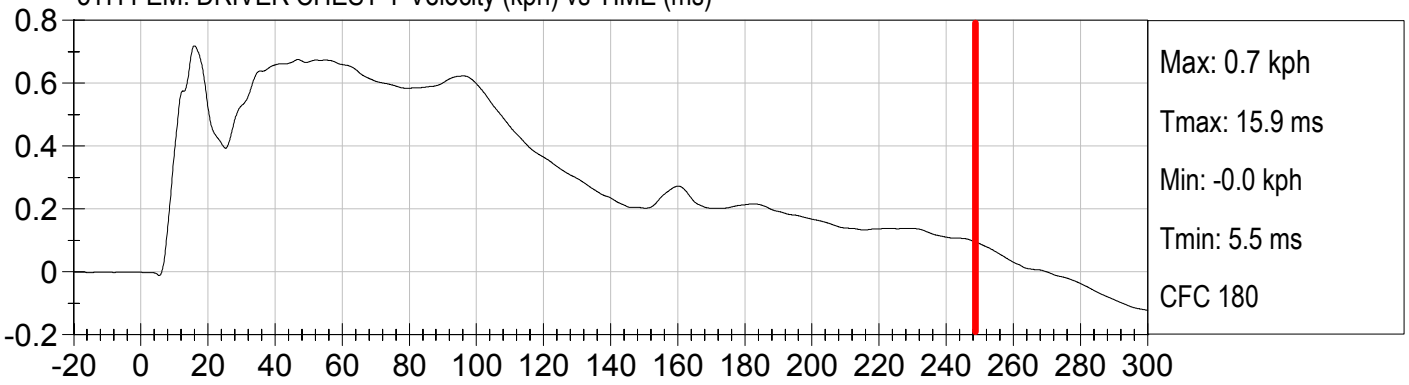
Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

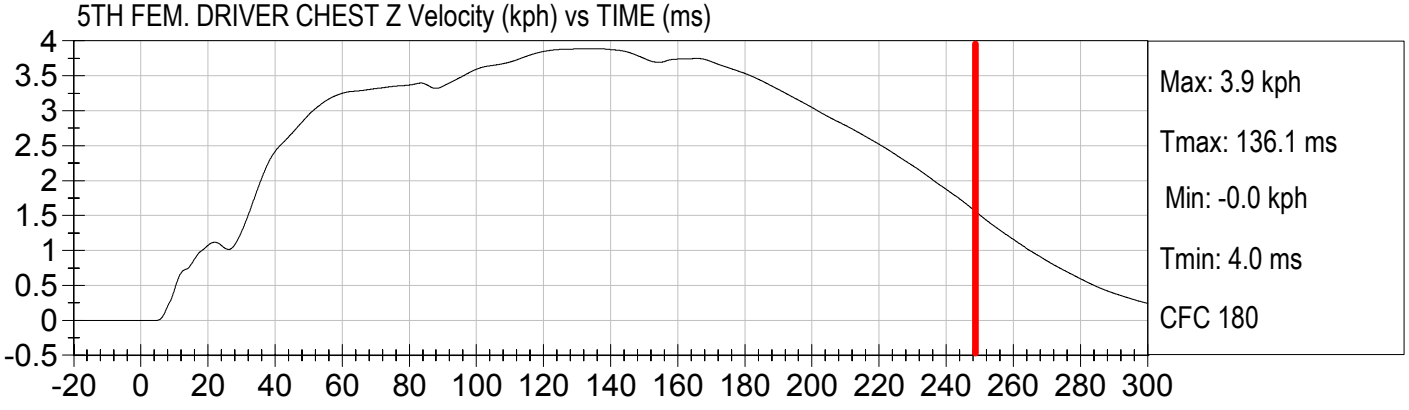
5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)



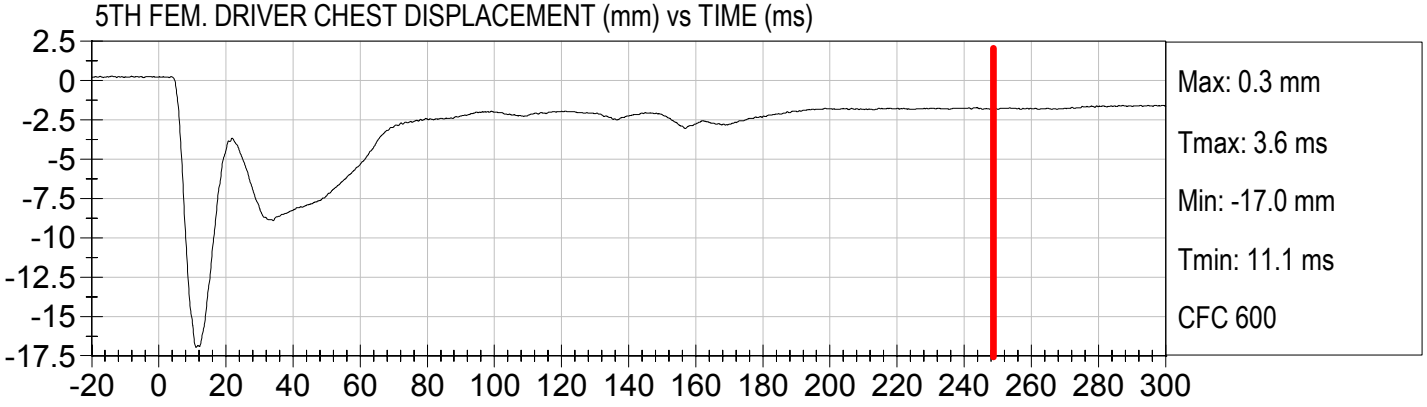
5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)

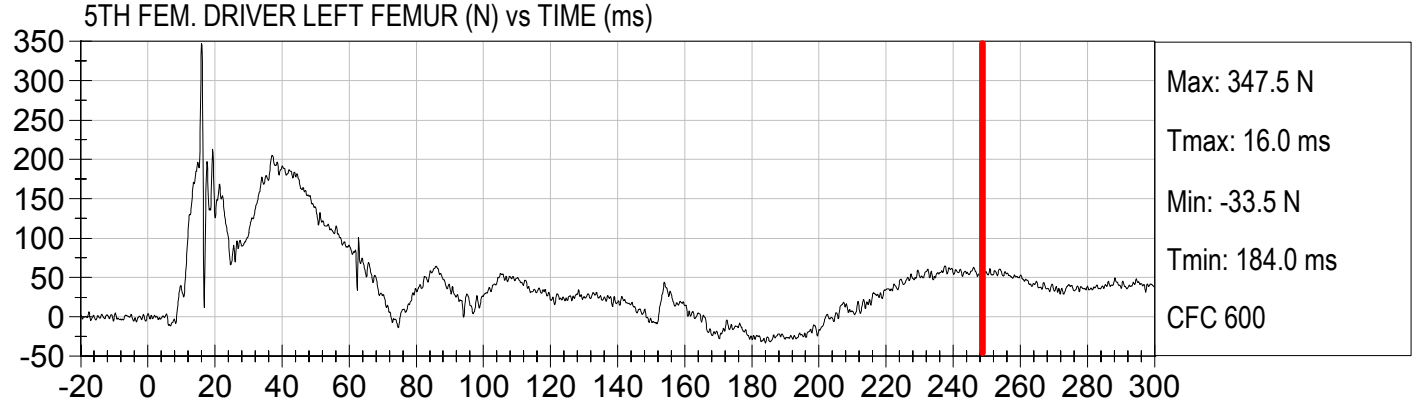


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

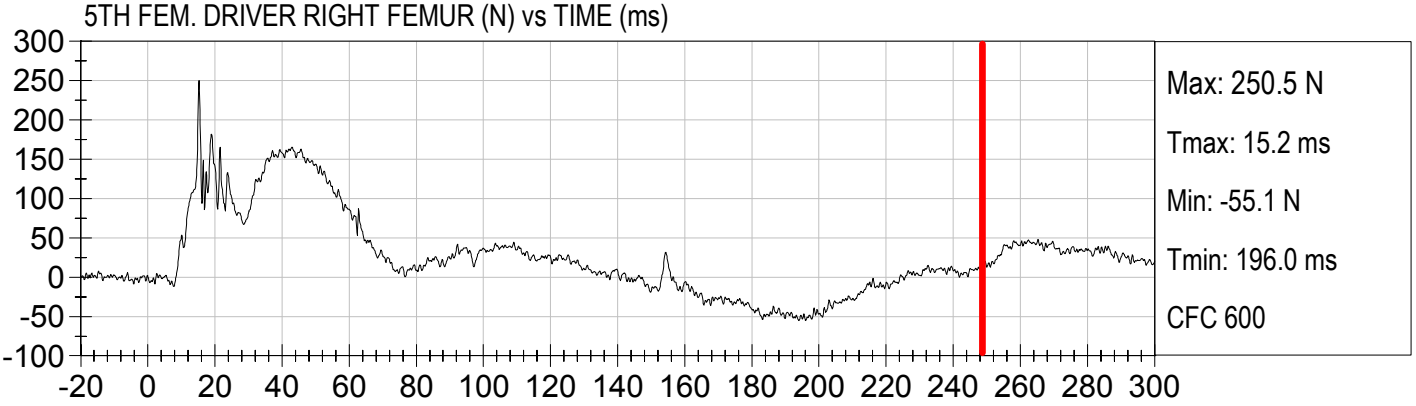
Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

5TH FEM. DRIVER LEFT FEMUR (N) vs TIME (ms)



5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)

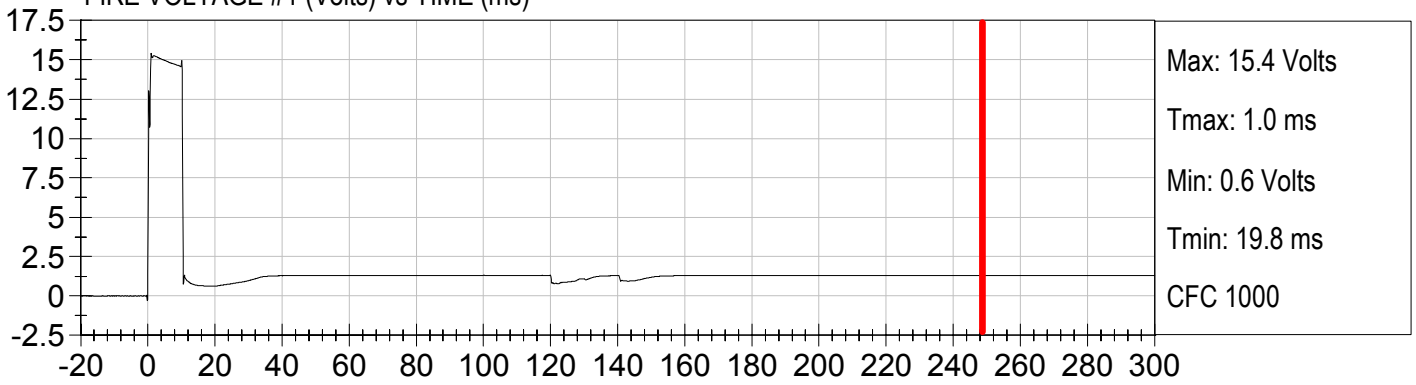


LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

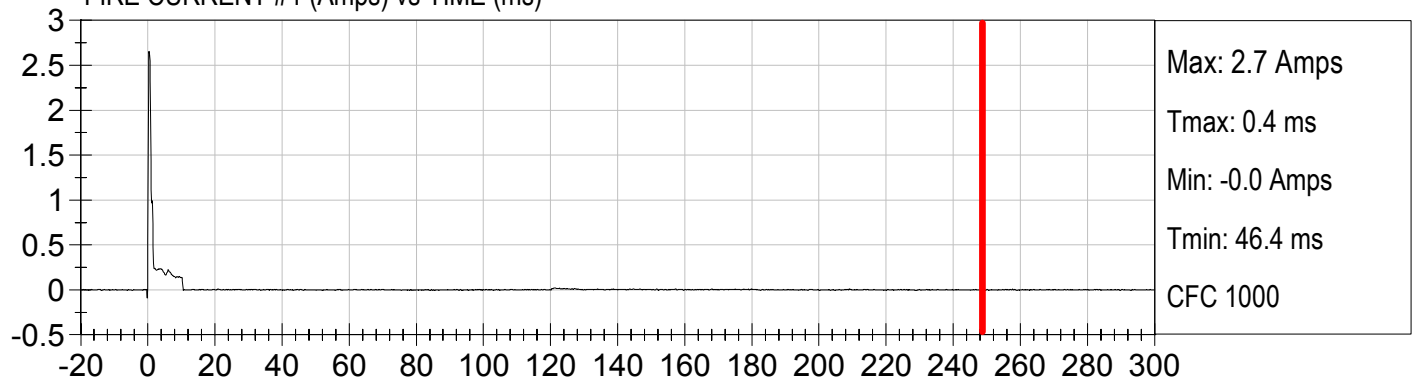
Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 245ms

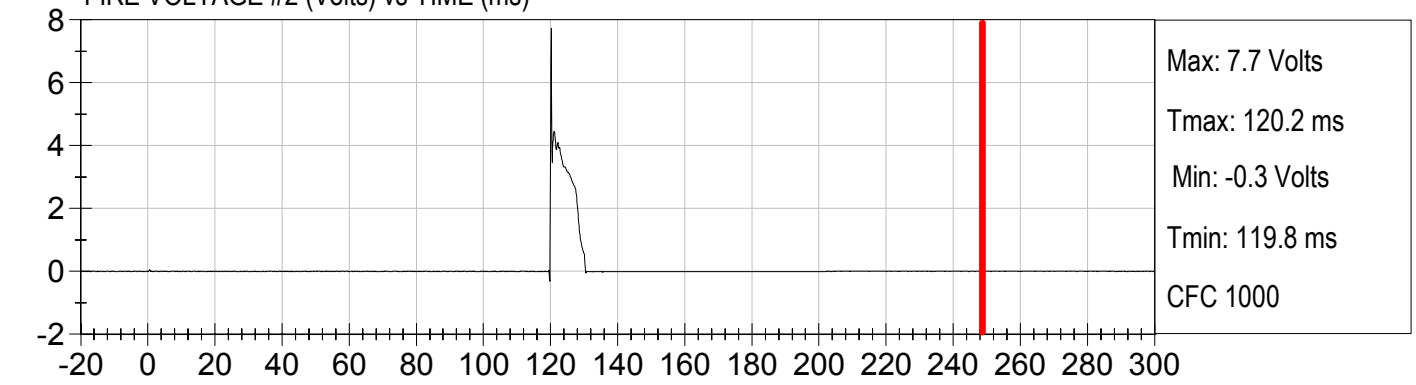
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



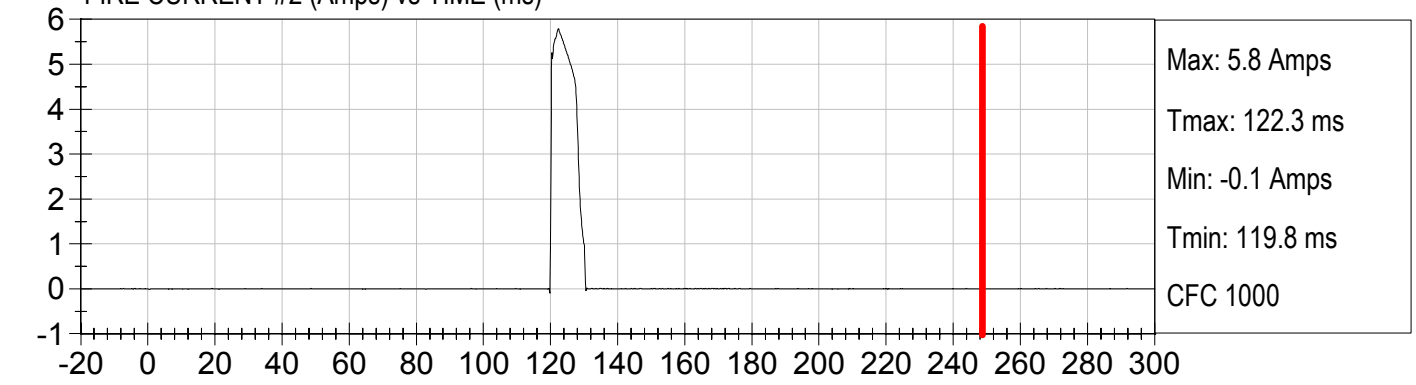
FIRE CURRENT #1 (Amps) vs TIME (ms)



FIRE VOLTAGE #2 (Volts) vs TIME (ms)

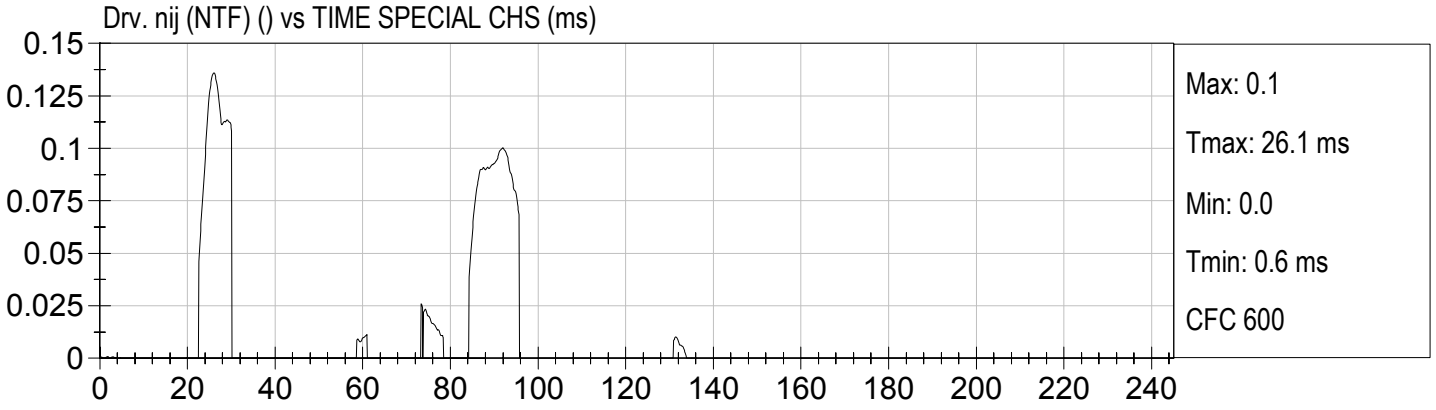


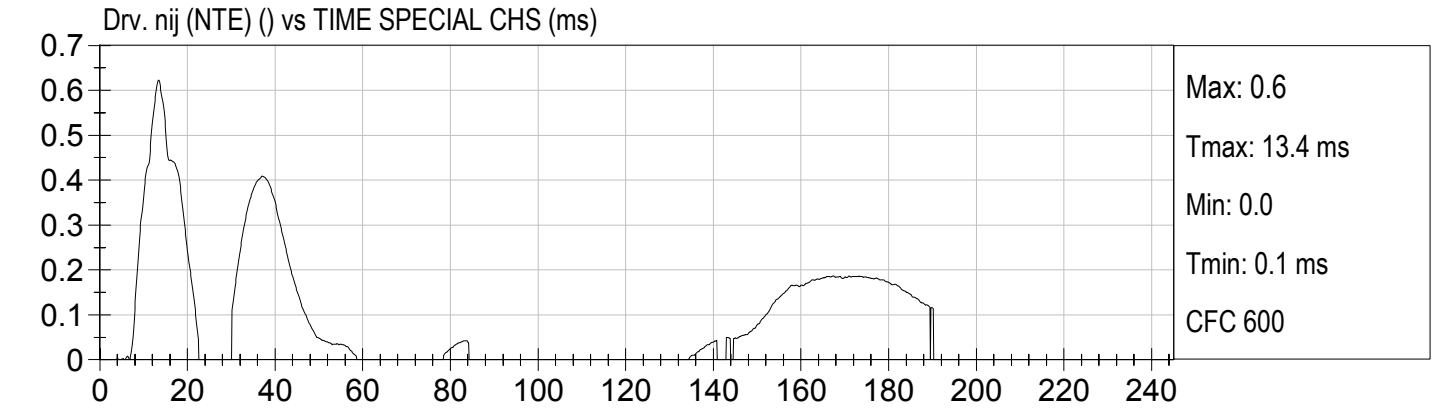
FIRE CURRENT #2 (Amps) vs TIME (ms)

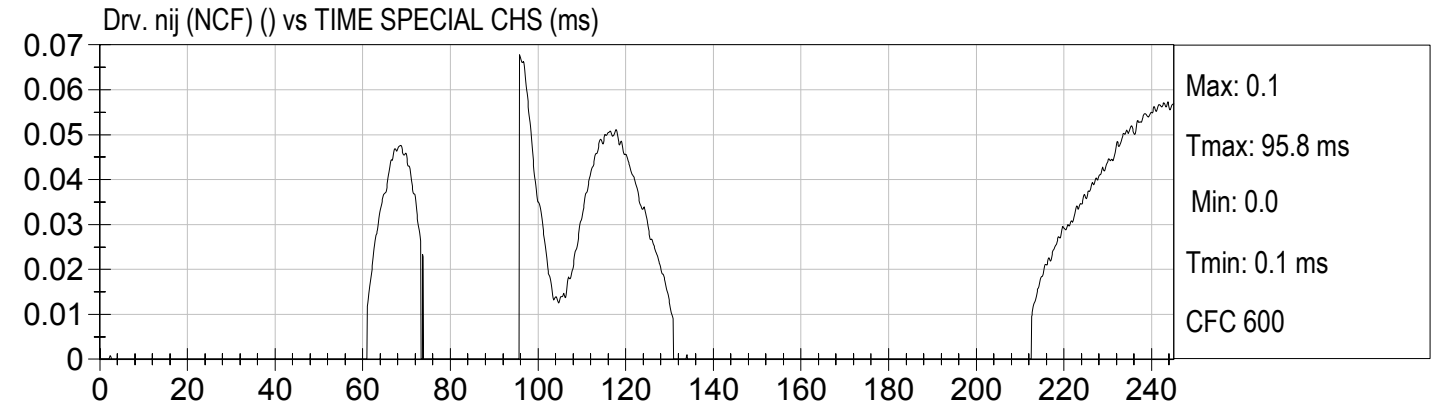


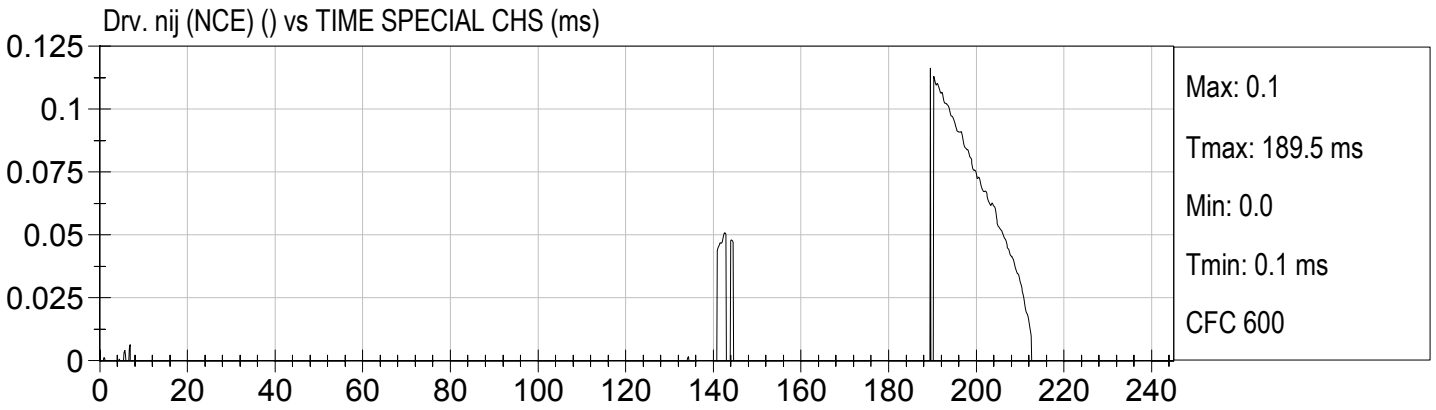
LOW RISK DEPLOYMENT
2005 Hyundai Santa Fe (C50510) (5TH P2)

Test Date: 02/14/06
Speed: 0.0 mph (0.0 km/h)









APPENDIX C

CRASH TEST PHOTOGRAPHS

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Vehicle Certification Label

Tire Placard

Pre-Test Front View of Test Vehicle

Post-Test Front View of Test Vehicle

Pre-Test Left Side View of Test Vehicle

Post-Test Left Side View of Test Vehicle

Pre-Test Right Side View of Test Vehicle

Post-Test Right Side View of Test Vehicle

Pre-Test Right Front Three-Quarter View of Test Vehicle

Post-Test Right Front Three-Quarter View of Test Vehicle

Pre-Test Left Front Three-Quarter View of Test Vehicle

Post-Test Left Front Three-Quarter View of Test Vehicle

Pre-Test Right Rear Three-Quarter View of Test Vehicle

Post-Test Right Rear Three-Quarter View of Test Vehicle

Pre-Test Left Rear Three-Quarter View of Test Vehicle

Post-Test Left Rear Three-Quarter View of Test Vehicle

Pre-Test Rear View of Test Vehicle

Post-Test Rear View of Test Vehicle

Pre-Test Windshield View

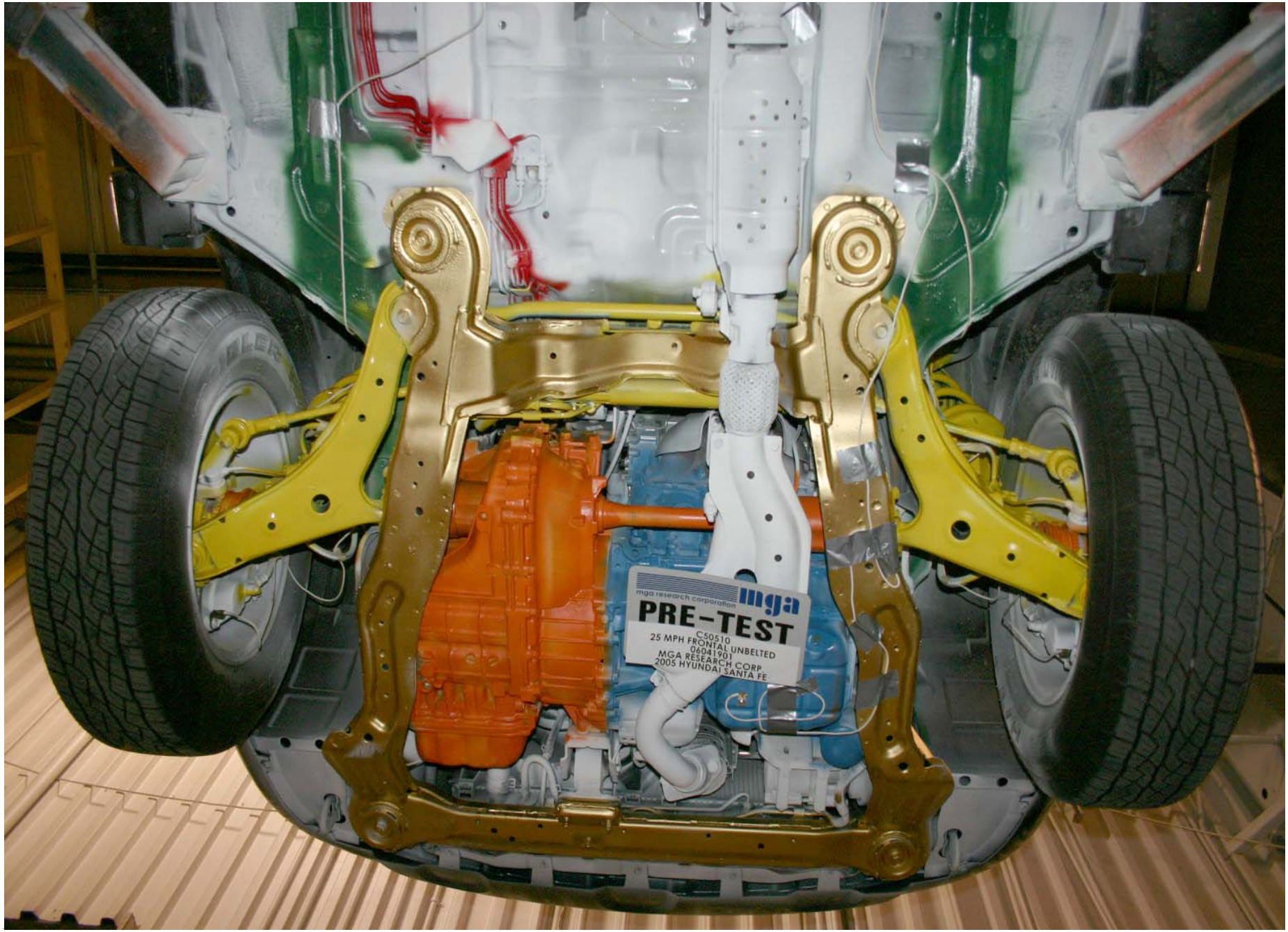
Post-Test Windshield View

Pre-Test Engine Compartment View

Post-Test Engine Compartment View

Pre-Test Fuel Filler Cap View

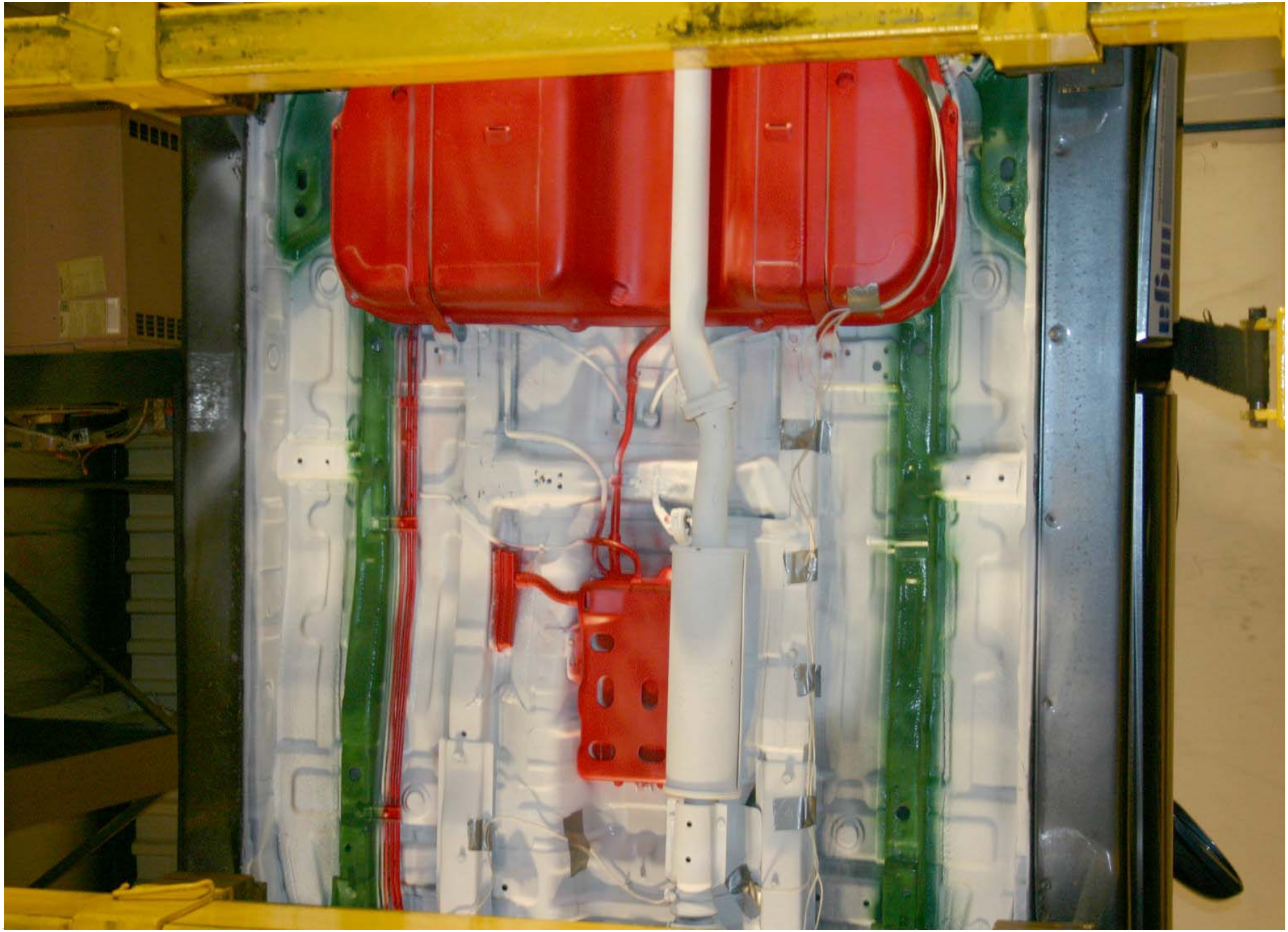
Post-Test Fuel Filler Cap View



Pre-Test Front Underbody View

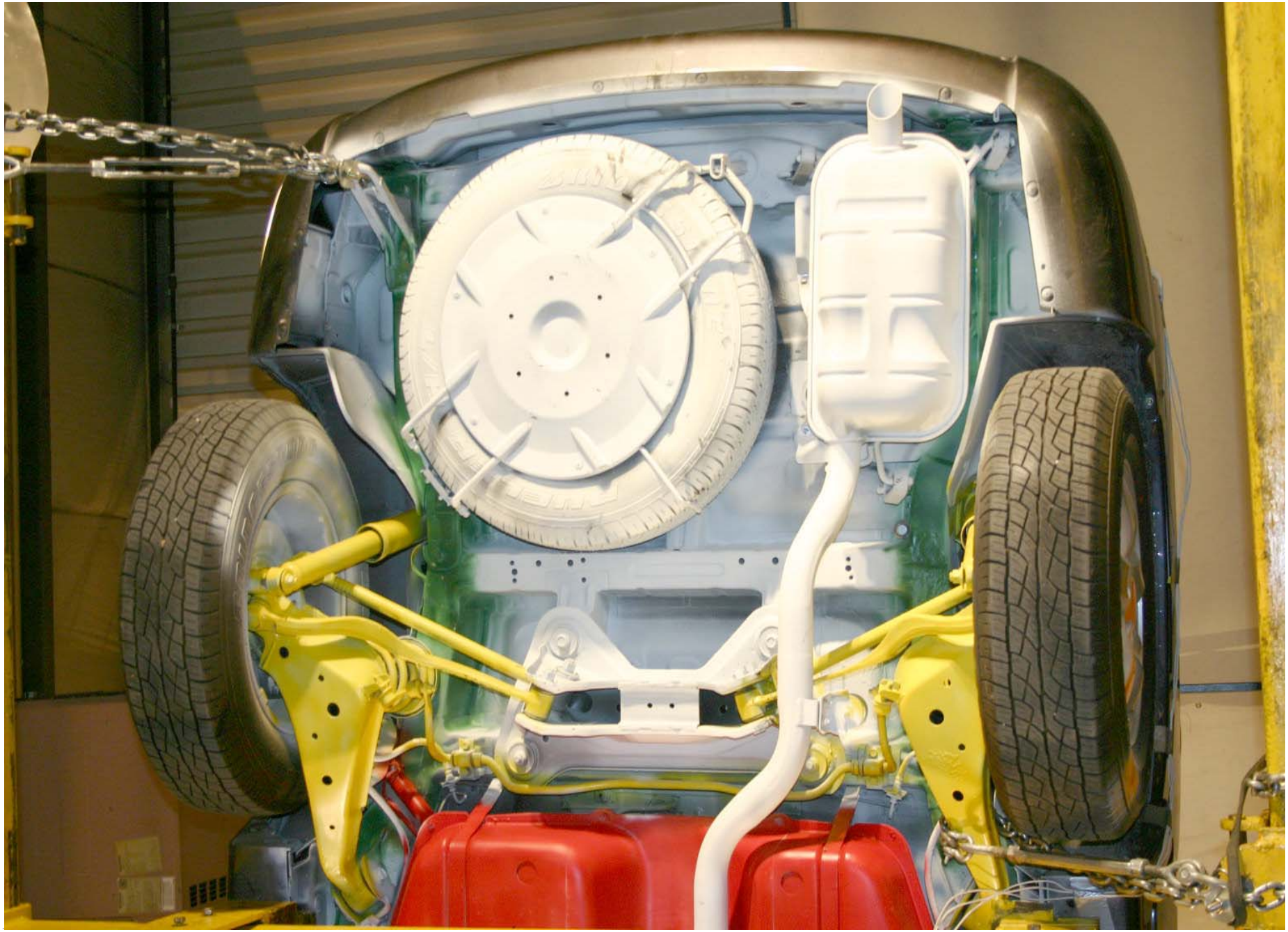
Post-Test Front Underbody View

Pre-Test Mid Underbody View

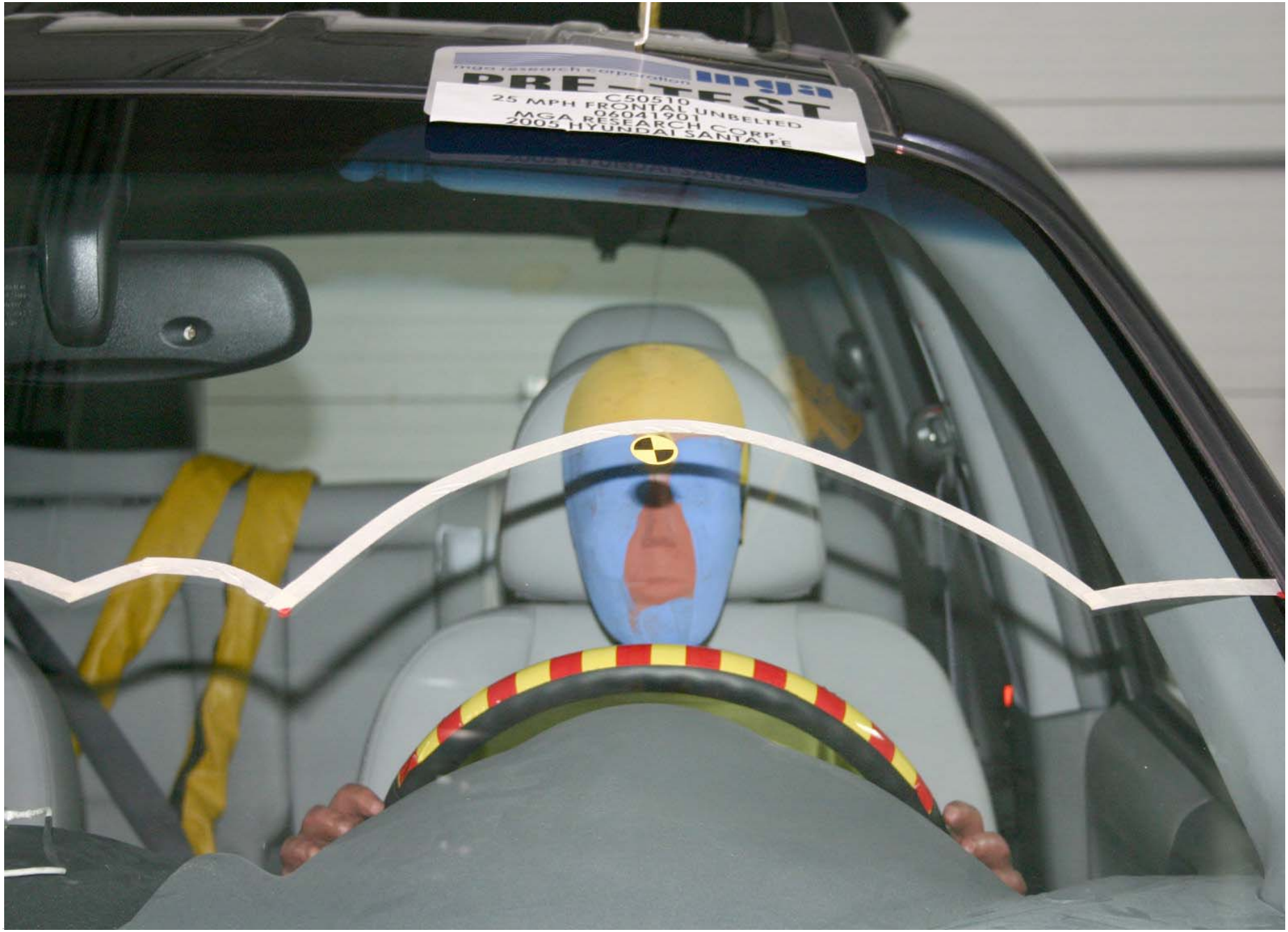


Post-Test Mid Underbody View

Pre-Test Rear Underbody View



Post-Test Rear Underbody View



Pre-Test Driver Dummy Front View (head position)

Post-Test Driver Dummy Front View (head position)

Pre-Test Driver Dummy Position Left Side View

Post-Test Driver Dummy Position Left Side View

Pre-Test Driver Dummy Position Left Side View (Door Open)

Post-Test Driver Dummy Position Left Side View (Door Open)

Pre-Test Driver Dummy Seat Position

Post-Test Driver Dummy Seat Position

Pre-Test Driver Dummy Feet Position

Post-Test Driver Dummy Feet Position

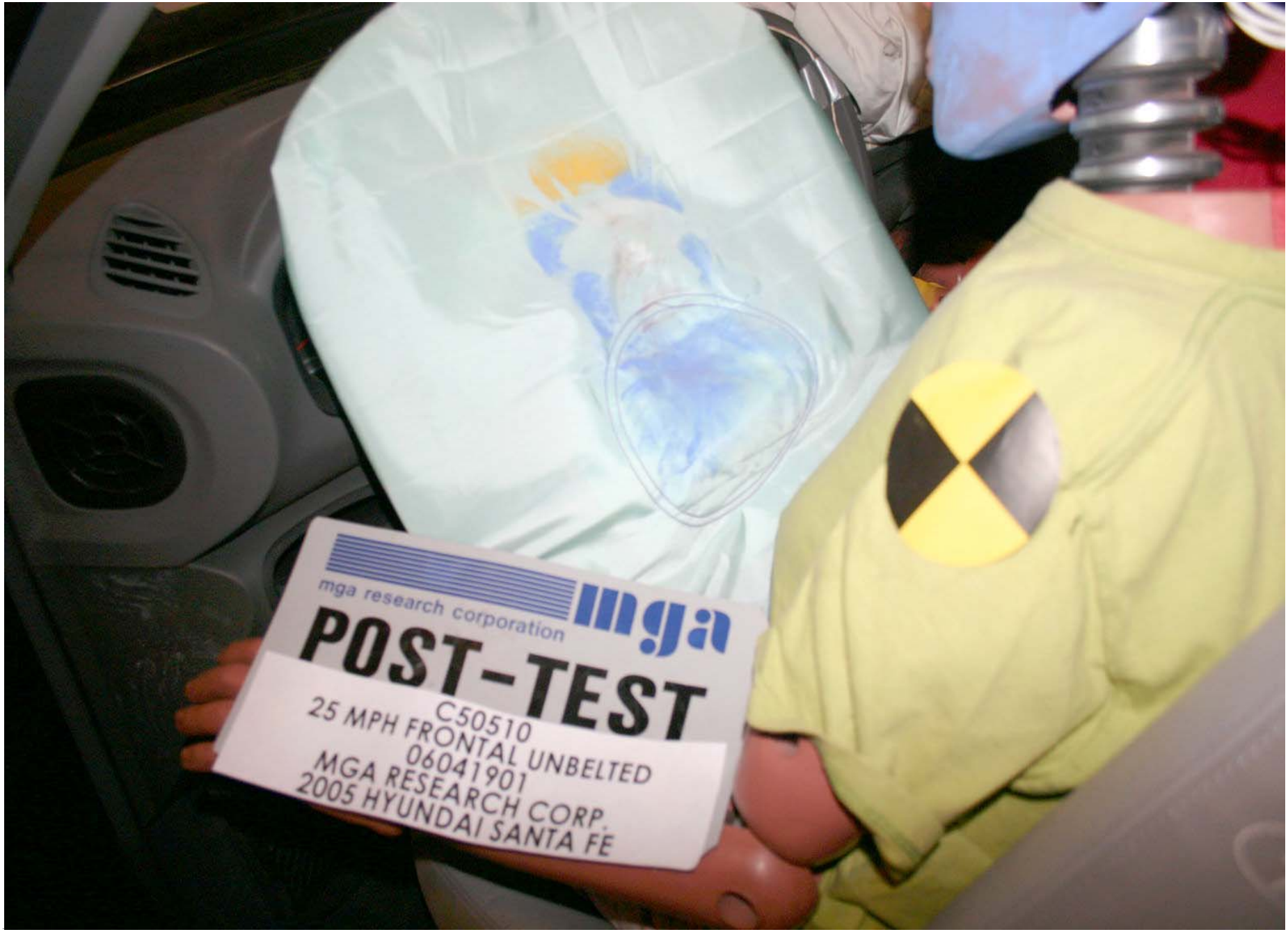
Pre-Test Driver Side Knee Bolster View

Post-Test Driver Side Knee Bolster View

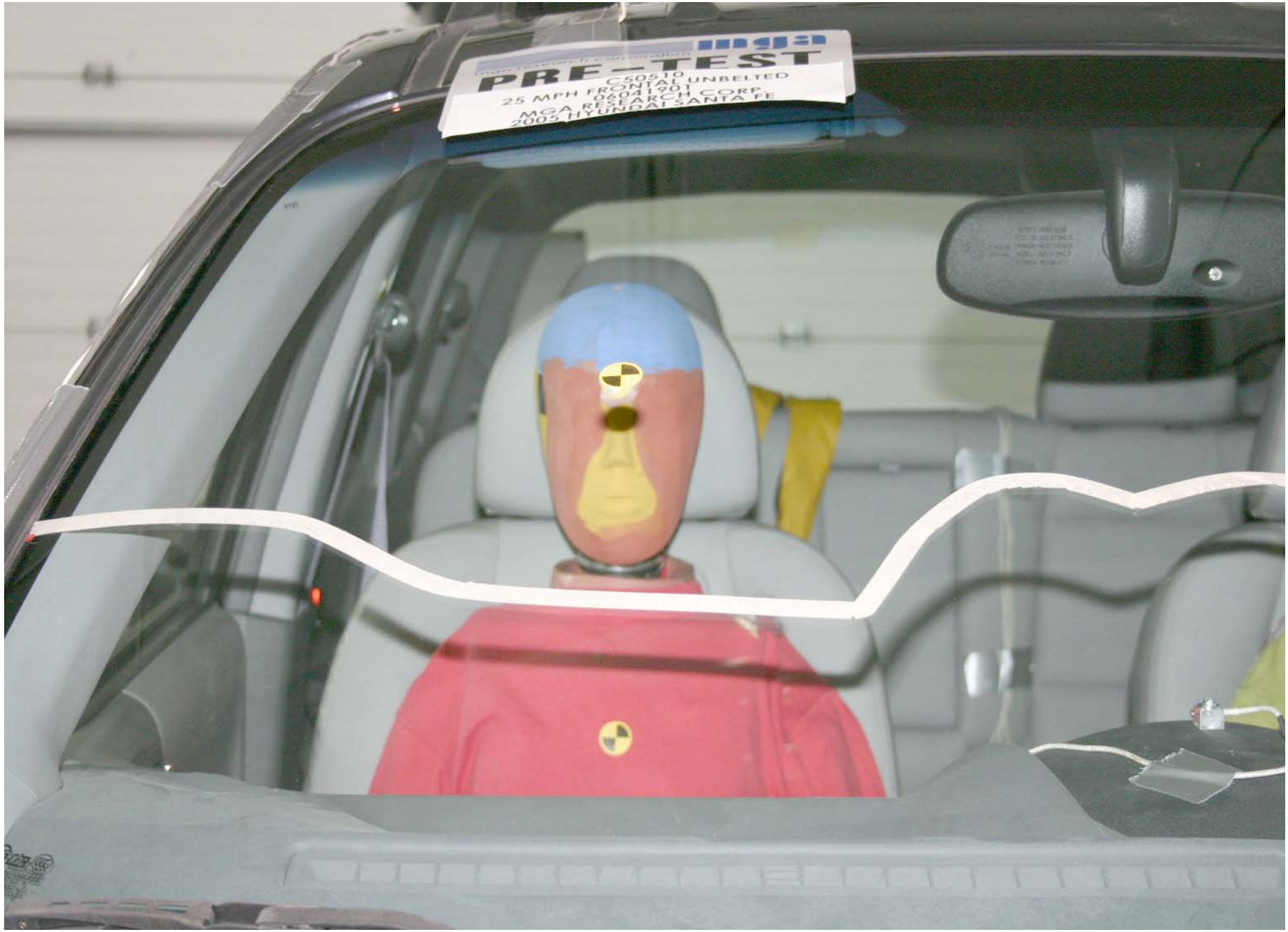
Post-Test Driver Dummy Head Contact (headrest)

Post-Test Driver Dummy Head Contact (visor)

Post-Test Driver Dummy Knee Contact



Post-Test Driver Dummy Airbag Contact



Pre-Test Passenger Dummy Front View (head position)

Post-Test Passenger Dummy Front View (head position)

Post-Test Passenger Dummy Position Right Side View

Pre-Test Passenger Dummy Position Right Side View (Door Open)

Post-Test Passenger Dummy Position Right Side View (Door Open)

Pre-Test Passenger Dummy Seat Position

Post-Test Passenger Dummy Seat Position

Pre-Test Passenger Dummy Feet Position

Post-Test Passenger Dummy Feet Position

Pre-Test Passenger Side Knee Bolster View

Post-Test Passenger Side Knee Bolster View

Post-Test Passenger Dummy Knee Contact

Post-Test Passenger Dummy Airbag Contact

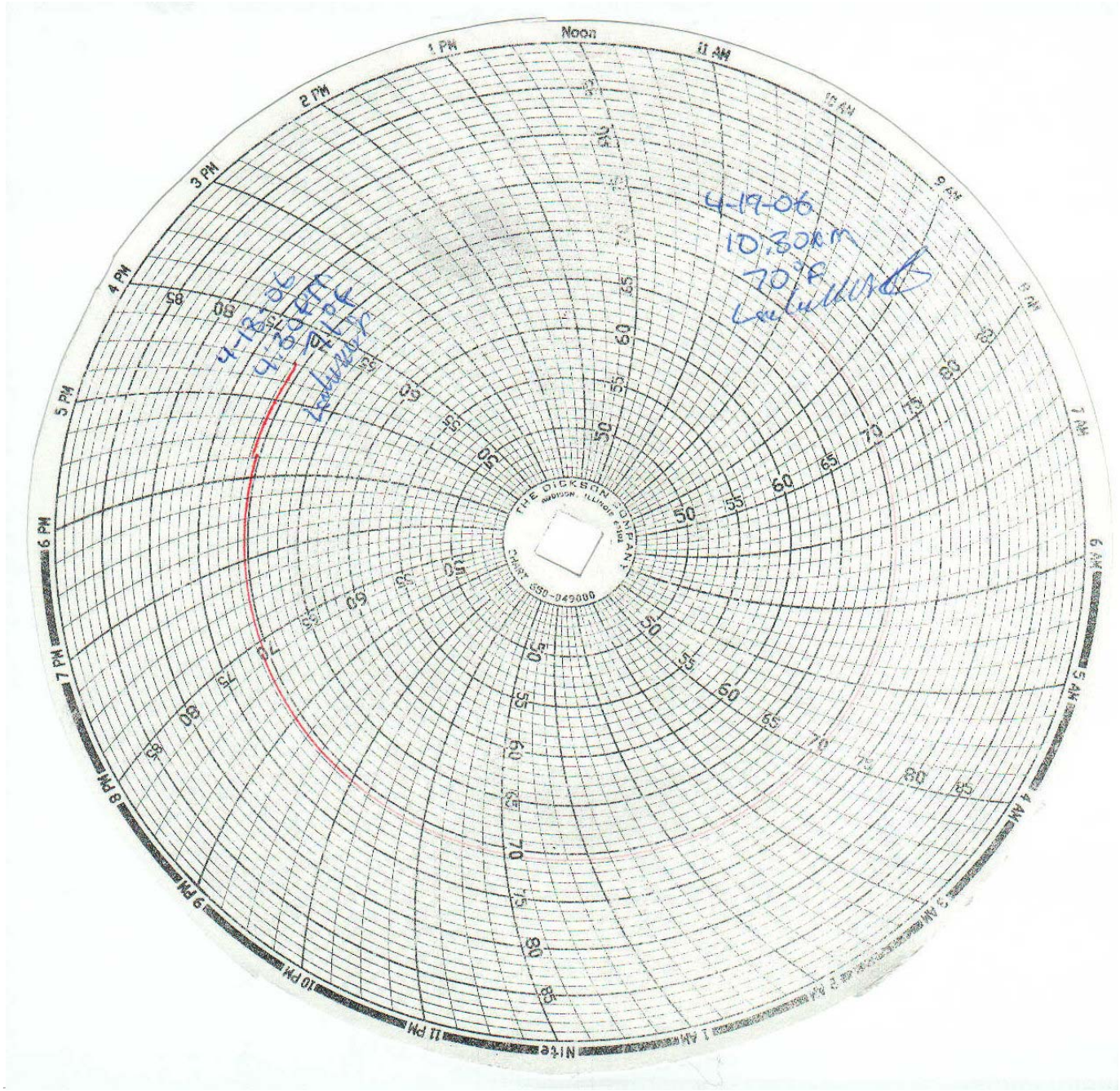
Rollover 90 Degrees

Rollover 180 Degrees

Rollover 270 Degrees

Rollover 360 Degrees

Vehicle Impact



Temperature Plot

Vehicle in Relation to The Load Cell Grid

APPENDIX D

LOW RISK PHOTOGRAPHS

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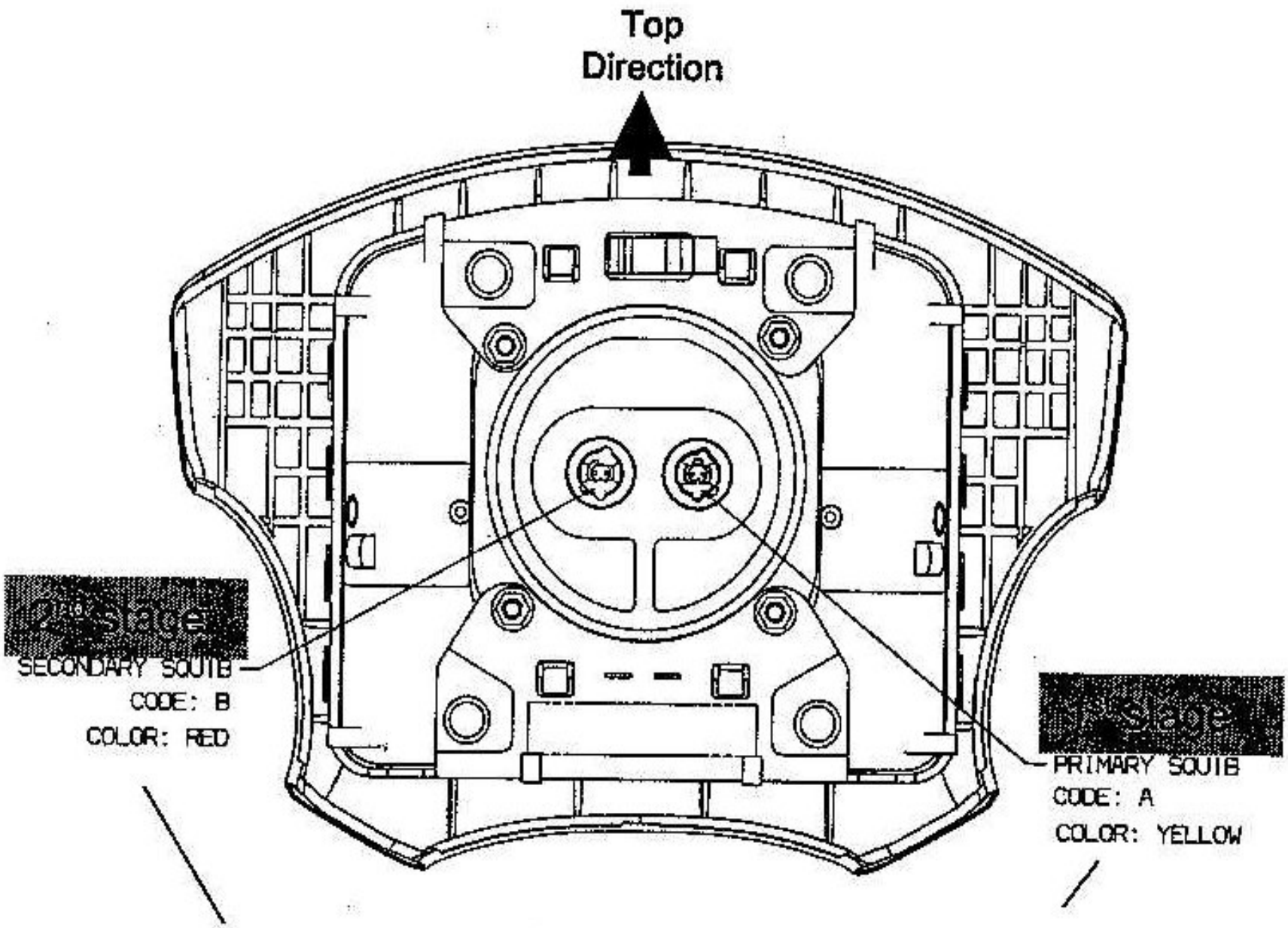

Driver Geometric Center (2005 HMC Santa Fe)

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Cosco Dream Ride Car Bed With Belt Middle

Cosco Dream Ride Car Bed With Belt Rearward

Unbelted 5th Percentile Female Reactivation Seat Middle

Britax Handle With Care 191 With Belt, Forward Seat Track, Handle Down

Britax Handle With Care 191 With Belt, Middle Seat Track, Handle Down

Britax Handle With Care 191 With Belt, Rearward Seat Track, Handle Down

Britax Handle With Care 191 Unbelted, Forward Seat Track, Handle Down

Britax Handle With Care 191 Unbelted, Middle Seat Track, Handle Down

Britax Handle With Care 191 Unbelted, Rearward Seat Track, Handle Down

Britax Handle With Care 191 Fwd Facing Unbelted, Forward Seat Track, Handle Down

Britax Handle With Care 191 Fwd Facing Unbelted, Middle Seat Track, Handle Down

Britax Handle With Care 191 Fwd Facing Unbelted,
Rearward Seat Track, Handle Down

Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

Evenflo First Choice 204 With Belt, Middle Seat Track, Handle Up

Evenflo First Choice 204 With Belt, Rearward Seat Track, Handle Up

Evenflo First Choice 204 Unbelted, Middle Seat Track, Handle Up

Evenflo First Choice 204 Unbelted, Rearward Seat Track, Handle Up

Evenflo First Choice 204 Fwd Facing Unbelted,
Forward Seat Track, Handle Up

Evenflo First Choice 204 Fwd Facing Unbelted,
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Evenflo First Choice 204 Fwd Facing Unbelted,
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Middle Seat Track

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Graco Infant W/ Base With Belt, Middle Seat Track, Handle Up

Graco Infant W/ Base With Belt, Rearward Seat Track, Handle Down

Graco Infant W/ Base Unbelted, Forward Seat Track, Handle Up

Graco Infant W/ Base Unbelted, Middle Seat Track, Handle Up

Graco Infant W/ Base Unbelted, Rearward Seat Track, Handle Down

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Graco Infant W/O Base With Belt, Middle Seat Track, Handle Up

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Graco Infant W/O Base Unbelted, Forward Seat Track, Handle Up

Graco Infant W/O Base Unbelted, Middle Seat Track, Handle Up

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Britax Roundabout 161 Fwd Facing With Belt,
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Britax Roundabout 161 Fwd Facing With Belt,
Middle Seat Track

Britax Roundabout 161 Fwd Facing With Belt,
Rearward Seat Track

Britax Roundabout 161 Fwd Facing Unbelted,
Forward Seat Track

Britax Roundabout 161 Fwd Facing Unbelted,
Middle Seat Track

Britax Roundabout 161 Fwd Facing Unbelted,
Rearward Seat Track

Britax Roundabout 161 Rear Facing With Belt,
Forward Seat Track

Britax Roundabout 161 Rear Facing With Belt,
Middle Seat Track

Britax Roundabout 161 Rear Facing With Belt,
Rearward Seat Track

Britax Roundabout 161 Rear Facing Unbelted,
Forward Seat Track

Britax Roundabout 161 Rear Facing Unbelted,
Middle Seat Track

Britax Roundabout 161 Rear Facing Unbelted,
Rearward Seat Track

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Rearward Seat Track

Century Encore Fwd Facing With Belt, Forward Seat Track

Century Encore Fwd Facing With Belt, Middle Seat Track

Century Encore Fwd Facing With Belt, Rearward Seat Track

Century Encore Fwd Facing Unbelted, Forward Seat Track

Century Encore Fwd Facing Unbelted, Middle Seat Track

Century Encore Fwd Facing Unbelted, Rearward Seat Track

Century Encore Rear Facing With Belt, Forward Seat Track

Century Encore Rear Facing With Belt, Middle Seat Track

Century Encore Rear Facing With Belt, Rearward Seat Track

Century Encore Rear Facing Unbelted, Forward Seat Track

Century Encore Rear Facing Unbelted, Middle Seat Track

Century Encore Rear Facing Unbelted, Rearward Seat Track

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Evenflo Medallion 254 Fwd Facing With Belt, Forward Seat Track

Evenflo Medallion 254 Fwd Facing With Belt, Middle Seat Track

Evenflo Medallion 254 Fwd Facing With Belt,
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Evenflo Medallion 254 Fwd Facing Unbelted,
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Evenflo Medallion 254 Fwd Facing Unbelted,
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Evenflo Medallion 254 Fwd Facing Unbelted,
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3-Year-Old Fwd Facing Britax Roundabout Belted,
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3-Year-Old Fwd Facing Britax Roundabout Belted,
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3-Year-Old Fwd Facing Century Encore Belted,
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3-Year-Old Fwd Facing Century Encore Belted,
Middle Seat Track

3-Year-Old Fwd Facing Century Encore Belted,
Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

3-Year-Old Fwd Facing Evenflo Medallion Belted, Middle Seat Track

3-Year-Old Fwd Facing Evenflo Medallion Belted, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation, Middle Seat Track

3-Year-Old Century Next Step Belted, Forward Seat Track

3-Year-Old Century Next Step Belted, Middle Seat Track

3-Year-Old Century Next Step Belted,
Rearward Seat Track

3-Year-Old Century Next Step Cinched With Harness,
Forward Seat Track

3-Year-Old Century Next Step Cinched With Harness,
Middle Seat Track

3-Year-Old Century Next Step Cinched With Harness,
Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

3-Year-Old Cosco High Back Booster Belted,
Forward Seat Track

3-Year-Old Cosco High Back Booster Belted,
Middle Seat Track

3-Year-Old Cosco High Back Booster Belted,
Rearward Seat Track

3-Year-Old Cosco High Back Booster Cinched With Harness,
Forward Seat Track

3-Year-Old Cosco High Back Booster Cinched With Harness, Middle Seat Track

3-Year-Old Cosco High Back Booster Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation, Middle Seat Track

6-Year-Old Century Next Step Belted, Forward Seat Track

6-Year-Old Century Next Strap Belted, Middle Seat Track

6-Year-Old Century Next Step Belted,
Rearward Seat Track

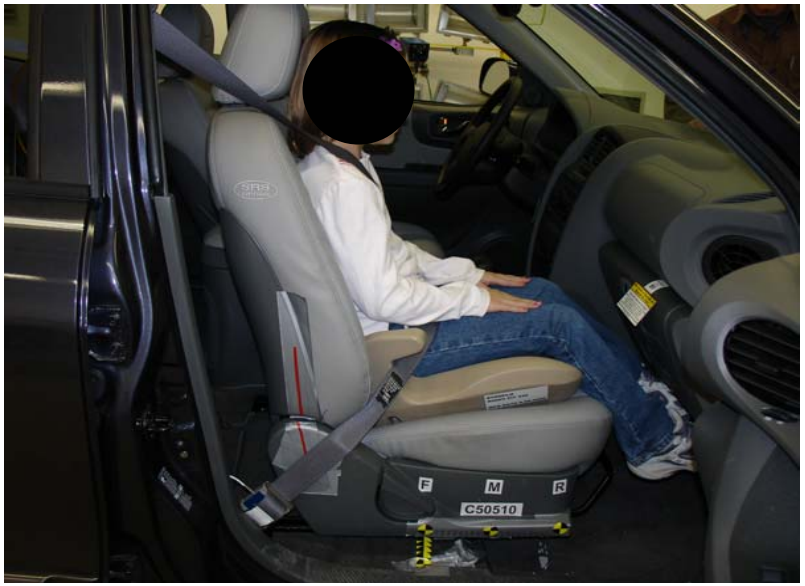
Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

6-Year-Old Cosco High Back Booster Belted,
Forward Seat Track

6-Year-Old Cosco High Back Booster Belted,
Middle Seat Track

6-Year-Old Cosco High Back Booster Belted,
Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Middle Seat Track



6-Year-Old Evenflo Right Fit Belted, Forward Seat Track

6-Year-Old Evenflo Right Fit Belted, Middle Seat Track

6-Year-Old Evenflo Right Fit Belted,
Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

3-Year-Old Unbelted, Forward Seat Track, Position 1

3-Year-Old Unbelted, Forward Seat Track, Position 2

3-Year-Old Unbelted, Forward Seat Track, Position 3

3-Year-Old Unbelted, Forward Seat Track, Position 4

3-Year-Old Unbelted, Forward Seat Track, Position 5

3-Year-Old Unbelted, Forward Seat Track, Position 6

3-Year-Old Unbelted, Forward Seat Track, Position 7

3-Year-Old Unbelted, Middle Seat Track, Position 1

3-Year-Old Unbelted, Middle Seat Track, Position 2

3-Year-Old Unbelted, Middle Seat Track, Position 3

3-Year-Old Unbelted, Middle Seat Track, Position 4

3-Year-Old Unbelted, Middle Seat Track, Position 5

3-Year-Old Unbelted, Middle Seat Track, Position 6

3-Year-Old Unbelted, Middle Seat Track, Position 7

3-Year-Old Unbelted, Rearward Seat Track, Position 1

3-Year-Old Unbelted, Rearward Seat Track, Position 2

3-Year-Old Unbelted, Rearward Seat Track, Position 3

3-Year-Old Unbelted, Rearward Seat Track, Position 4

3-Year-Old Unbelted, Rearward Seat Track, Position 5

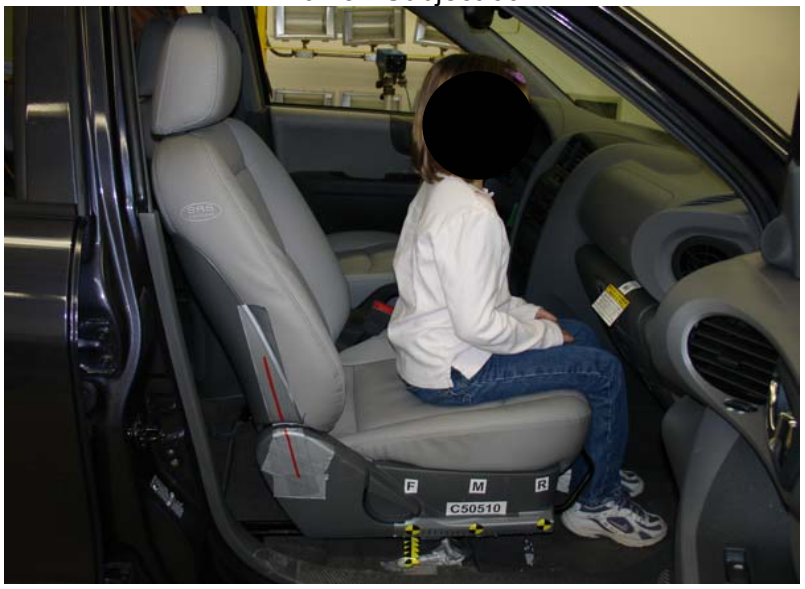
3-Year-Old Unbelted, Rearward Seat Track, Position 6

3-Year-Old Unbelted, Rearward Seat Track,
Position 7

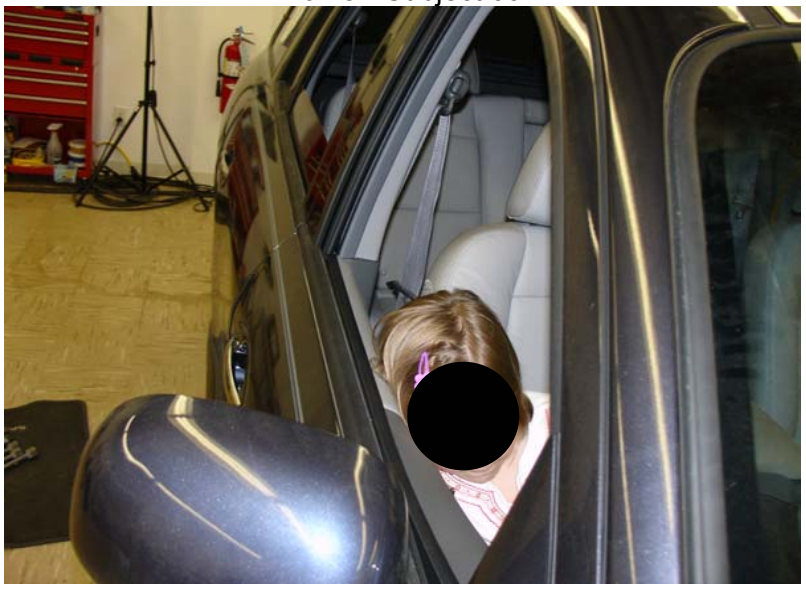
Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

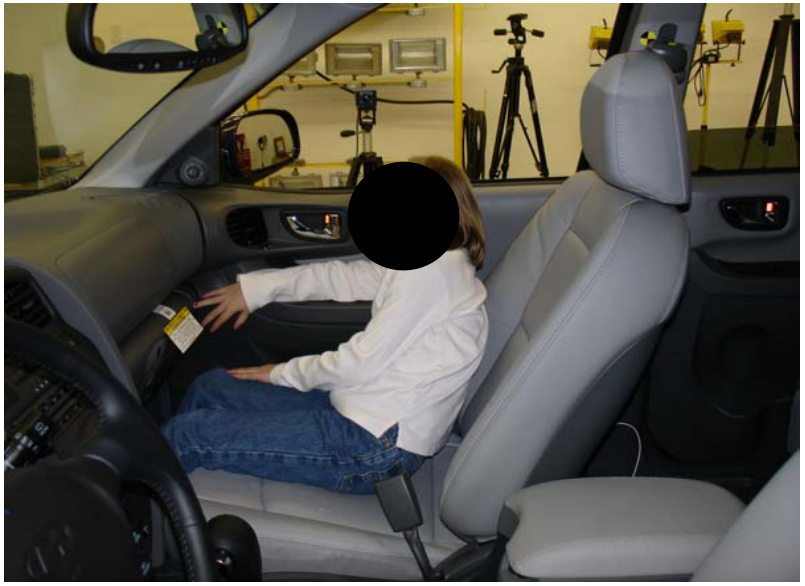
6-Year-Old Unbelted, Forward Seat Track, Position 1,
Human Subject 09

6-Year-Old Unbelted, Forward Seat Track, Position 2,
Human Subject 09



6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09


6-Year-Old Unbelted, Forward Seat Track, Position 9,
Human Subject 09

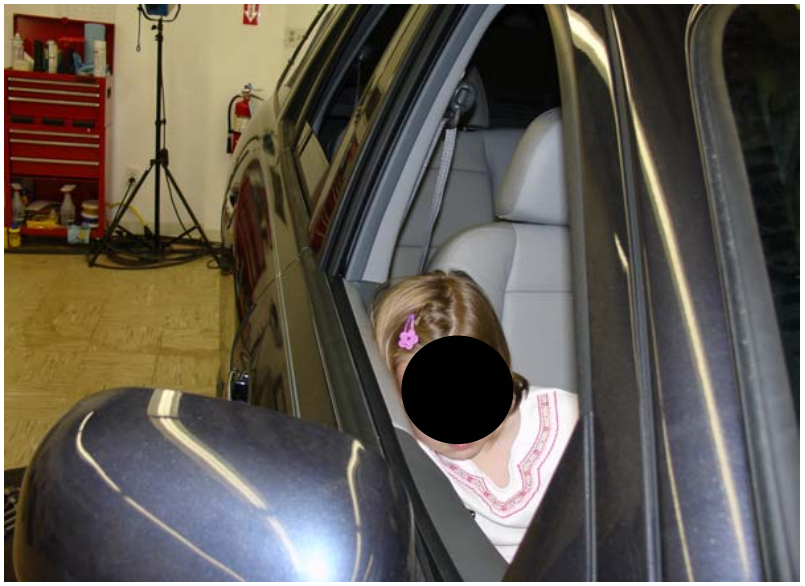


6-Year-Old Unbelted, Forward Seat Track, Position 9, View 2, Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 1, Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 2, Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 4, Human Subject 09



6-Year-Old Unbelted, Middle Seat Track, Position 9, Human Subject 09

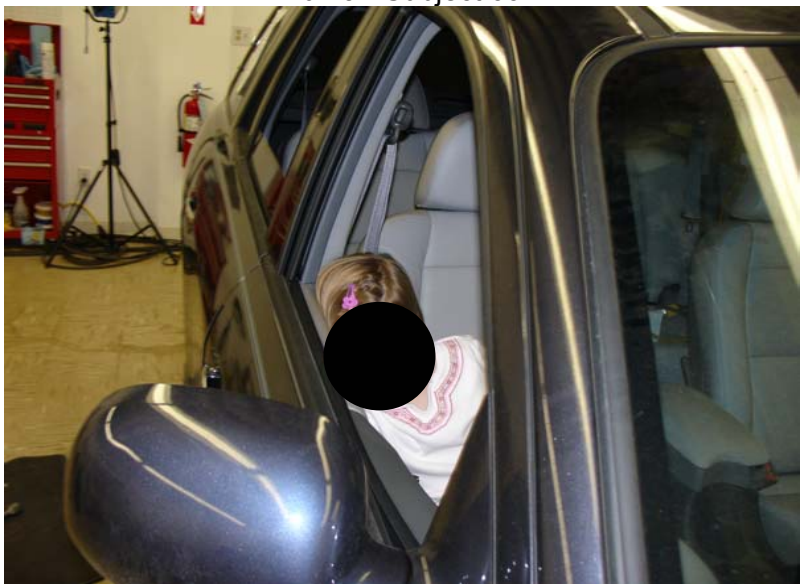
6-Year-Old Unbelted, Middle Seat Track, Position 9, View 2, Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 1, Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 2, Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 9,
Human Subject 09


6-Year-Old Unbelted, Rearward Seat Track, Position 9, View 2,
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Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

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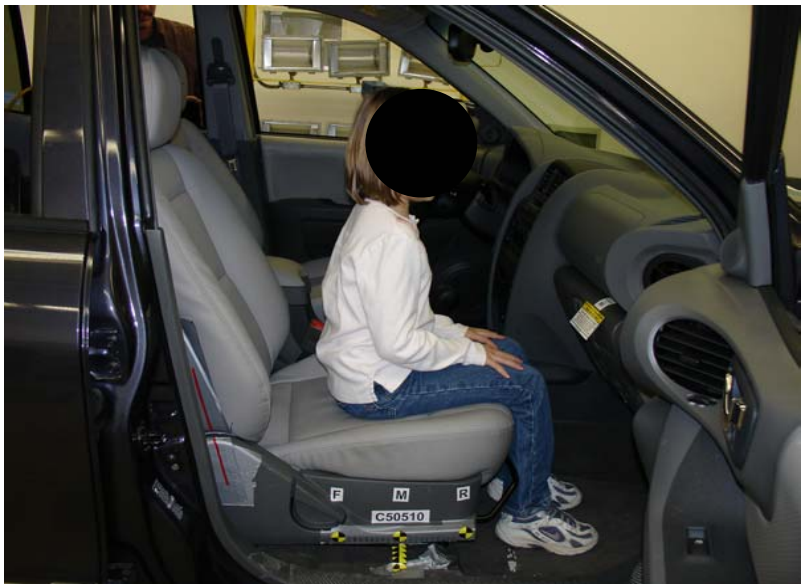
6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09



6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Middle Seat Track, Position 4,
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Human Subject 06

6-Year-Old Unbelted, Middle Seat Track, Position 4,
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6-Year-Old Unbelted, Rearward Seat Track, Position 4,
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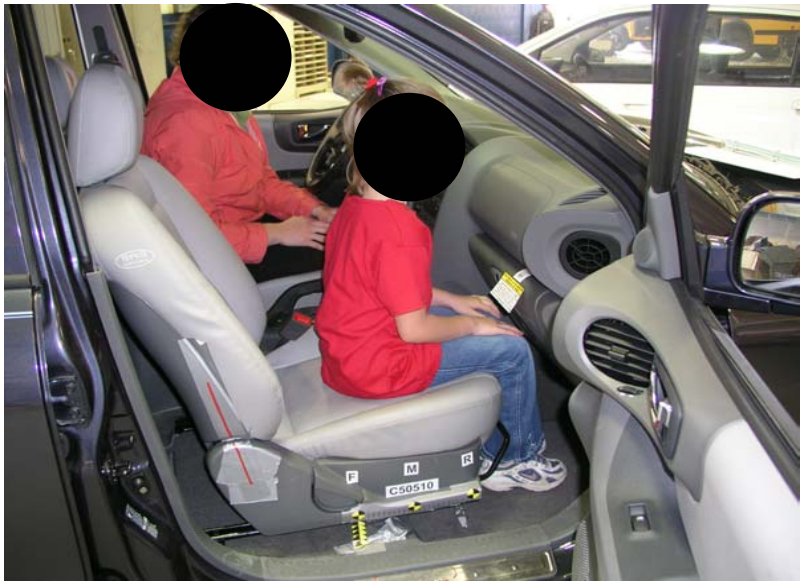
6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 06

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 06

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 06

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 06

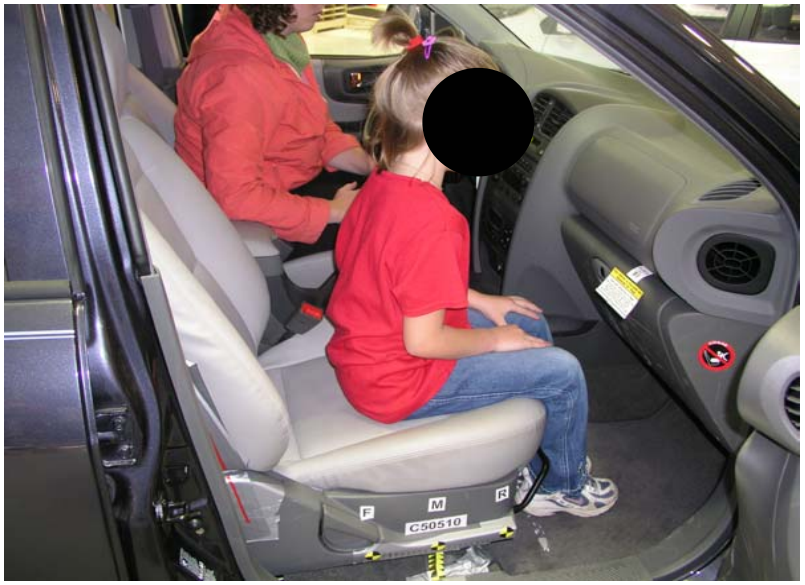
6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09



6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09

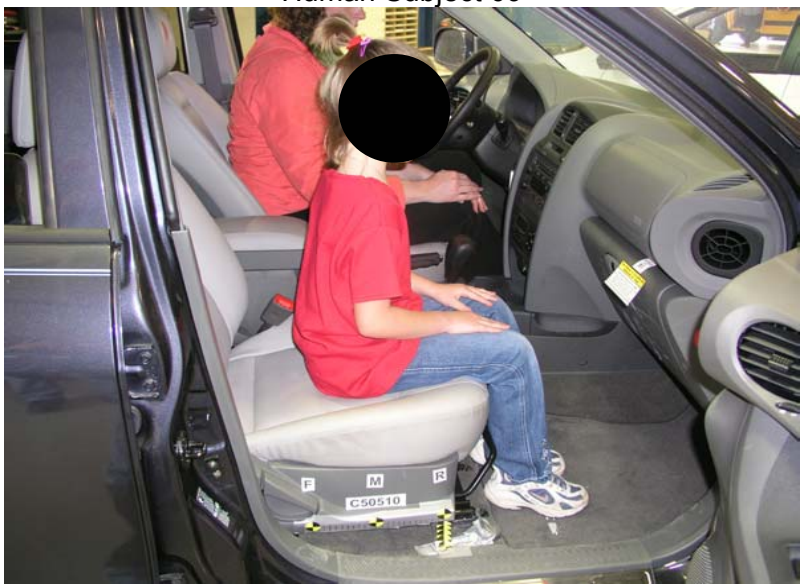
6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 09



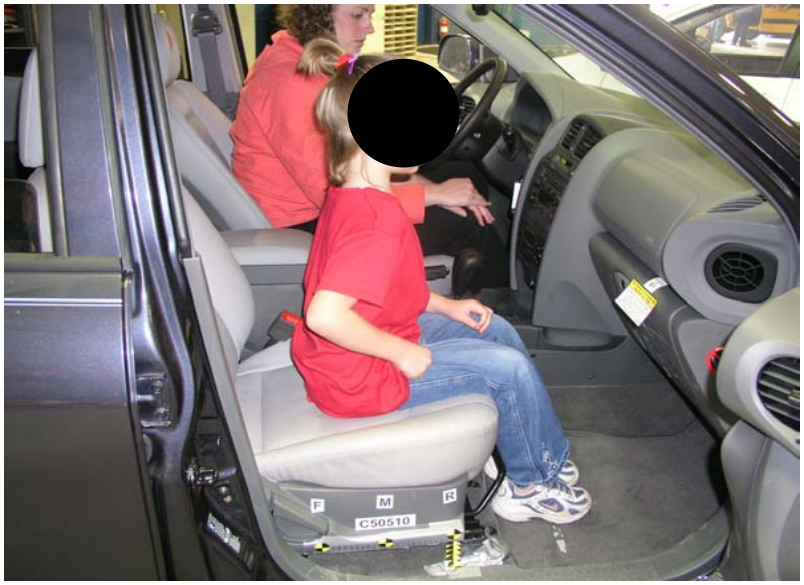
6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09



6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09



6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
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6-Year-Old Unbelted, Forward Seat Track, Position 4,
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6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 14

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 14

6-Year-Old Unbelted, Middle Seat Track, Position 4,
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6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 14

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Britax Roundabout 161 Fwd Facing With Belt,
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Britax Roundabout 161 Fwd Facing With Belt,
Rearward Seat Track

Britax Roundabout 161 Fwd Facing Unbelted,
Forward Seat Track

Britax Roundabout 161 Fwd Facing Unbelted,
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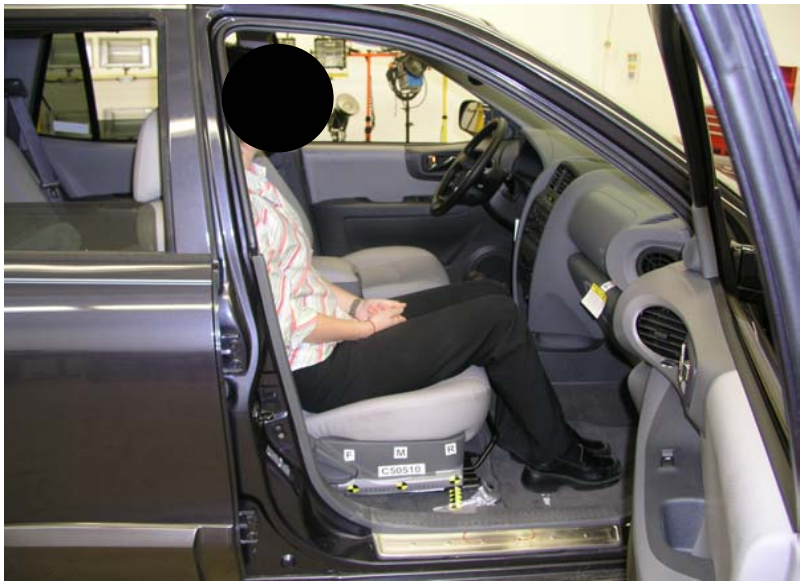
Britax Roundabout 161 Rear Facing Unbelted,
Middle Seat Track

Britax Roundabout 161 Rear Facing Unbelted,
Rearward Seat Track



Unbelted Representative Female Reactivation,
Rearward Seat Track

3-Year-Old Century Next Step Belted, Forward Seat Track

3-Year-Old Century Next Step Belted, Middle Seat Track

3-Year-Old Century Next Step Belted,
Rearward Seat Track

3-Year-Old Century Next Step Cinched With Harness,
Forward Seat Track

3-Year-Old Century Next Step Cinched With Harness, Middle Seat Track

3-Year-Old Century Next Step Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation, Middle Seat Track

6-Year-Old Century Next Step Belted, Forward Seat Track

6-Year-Old Century Next Strap Belted, Middle Seat Track

6-Year-Old Century Next Step Belted,
Rearward Seat Track

Unbelted Representative Female Reactivation,
Forward Seat Track

6-Year-Old Cosco High Back Booster Belted,
Forward Seat Track

6-Year-Old Cosco High Back Booster Belted,
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6-Year-Old Cosco High Back Booster Belted,
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Unbelted Representative Female Reactivation,
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Cosco Dream Ride Car Bed With Belt, Middle Seat Track

Cosco Dream Ride Car Bed With Belt, Rearward Seat Track

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Rearward Seat Track

Britax Handle With Care 191 With Belt, Forward Seat Track, Handle Down

Britax Handle With Care 191 With Belt, Middle Seat Track, Handle Down

Britax Handle With Care 191 With Belt, Rearward Seat Track, Handle Down

Britax Handle With Care 191 Unbelted, Forward Seat Track, Handle Down

Britax Handle With Care 191 Unbelted, Middle Seat Track, Handle Down

Britax Handle With Care 191 Unbelted, Rearward Seat Track, Handle Down

Britax Handle With Care 191 Fwd Facing Unbelted, Forward Seat Track, Handle Down

Britax Handle With Care 191 Fwd Facing Unbelted, Middle Seat Track, Handle Down

Britax Handle With Care 191 Fwd Facing Unbelted,
Rearward Seat Track, Handle Down

Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

Evenflo First Choice 204 With Belt, Middle Seat Track, Handle Up

Evenflo First Choice 204 With Belt, Rearward Seat Track, Handle Down

Evenflo First Choice 204 Unbelted, Middle Seat Track, Handle Up

Evenflo First Choice 204 Unbelted, Rearward Seat Track, Handle Up

Evenflo First Choice 204 Fwd Facing Unbelted,
Forward Seat Track, Handle Up

Evenflo First Choice 204 Fwd Facing Unbelted,
Middle Seat Track, Handle Up

Evenflo First Choice 204 Fwd Facing Unbelted,
Rearward Seat Track, Handle Up

Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

Graco Infant W/ Base With Belt, Forward Seat Track, Handle Up

Graco Infant W/ Base With Belt, Middle Seat Track, Handle Up

Graco Infant W/ Base With Belt, Rearward Seat Track, Handle Down

Graco Infant W/ Base Unbelted, Forward Seat Track, Handle Up

Graco Infant W/ Base Unbelted, Middle Seat Track, Handle Up

Graco Infant W/ Base Unbelted, Rearward Seat Track, Handle Down

Graco Infant W/ Base Fwd Facing Unbelted, Forward Seat Track, Handle Up

Graco Infant W/ Base Fwd Facing Unbelted, Middle Seat Track, Handle Up

Graco Infant W/ Base Fwd Facing Unbelted,
Rearward Seat Track, Handle Up

Graco Infant W/O Base With Belt,
Forward Seat Track, Handle Up

Graco Infant W/O Base With Belt, Middle Seat Track,
Handle Up

Graco Infant W/O Base With Belt, Rearward Seat Track,
Handle Down

Graco Infant W/O Base Unbelted, Forward Seat Track, Handle Up

Graco Infant W/O Base Unbelted, Middle Seat Track, Handle Up

Graco Infant W/O Base Unbelted, Rearward Seat Track, Handle Down

Graco Infant W/O Base Fwd Facing Unbelted, Forward Seat Track, Handle Up

Graco Infant W/O Base Fwd Facing Unbelted,
Middle Seat Track, Handle Up

Graco Infant W/O Base Fwd Facing Unbelted,
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Britax Roundabout 161 Fwd Facing With Belt,
Forward Seat Track

Britax Roundabout 161 Fwd Facing With Belt,
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Britax Roundabout 161 Fwd Facing Unbelted,
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Britax Roundabout 161 Rear Facing Unbelted,
Forward Seat Track

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Britax Roundabout 161 Rear Facing Unbelted,
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Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

Century Encore Fwd Facing With Belt, Forward Seat Track

Century Encore Fwd Facing With Belt, Middle Seat Track

Century Encore Fwd Facing With Belt, Rearward Seat Track

Century Encore Fwd Facing Unbelted, Forward Seat Track

Century Encore Fwd Facing Unbelted, Middle Seat Track

Century Encore Fwd Facing Unbelted, Rearward Seat Track

Century Encore Rear Facing With Belt, Forward Seat Track

Century Encore Rear Facing With Belt, Middle Seat Track

Century Encore Rear Facing With Belt, Rearward Seat Track

Century Encore Rear Facing Unbelted, Forward Seat Track

Century Encore Rear Facing Unbelted, Middle Seat Track

Century Encore Rear Facing Unbelted, Rearward Seat Track

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Evenflo Medallion 254 Fwd Facing With Belt, Forward Seat Track

Evenflo Medallion 254 Fwd Facing With Belt, Middle Seat Track

Evenflo Medallion 254 Fwd Facing With Belt,
Rearward Seat Track

Evenflo Medallion 254 Fwd Facing Unbelted,
Forward Seat Track

Evenflo Medallion 254 Fwd Facing Unbelted,
Middle Seat Track

Evenflo Medallion 254 Fwd Facing Unbelted,
Rearward Seat Track

Evenflo Medallion 254 Rear Facing With Belt,
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Evenflo Medallion 254 Rear Facing With Belt,
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Evenflo Medallion 254 Rear Facing With Belt,
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Evenflo Medallion 254 Rear Facing Unbelted,
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Evenflo Medallion 254 Rear Facing Unbelted,
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Evenflo Medallion 254 Rear Facing Unbelted,
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Forward Seat Track

3-Year-Old Fwd Facing Britax Roundabout Belted,
Forward Seat Track

3-Year-Old Fwd Facing Britax Roundabout Belted,
Middle Seat Track

3-Year-Old Fwd Facing Britax Roundabout Belted,
Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

3-Year-Old Fwd Facing Century Encore Belted,
Forward Seat Track

3-Year-Old Fwd Facing Century Encore Belted,
Middle Seat Track

3-Year-Old Fwd Facing Century Encore Belted,
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Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

3-Year-Old Fwd Facing Evenflo Medallion Belted,
Middle Seat Track

3-Year-Old Fwd Facing Evenflo Medallion Belted,
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Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

3-Year-Old Century Next Step Belted, Forward Seat Track

3-Year-Old Century Next Step Belted, Middle Seat Track

3-Year-Old Century Next Step Belted,
Rearward Seat Track

3-Year-Old Century Next Step Cinched With Harness,
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3-Year-Old Century Next Step Cinched With Harness,
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3-Year-Old Century Next Step Cinched With Harness,
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3-Year-Old Cosco High Back Booster Belted,
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6-Year-Old Century Next Step Belted, Forward Seat Track

6-Year-Old Century Next Strap Belted, Middle Seat Track

6-Year-Old Century Next Step Belted,
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Rearward Seat Track

6-Year-Old Cosco High Back Booster Belted,
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6-Year-Old Cosco High Back Booster Belted,
Middle Seat Track

6-Year-Old Cosco High Back Booster Belted,
Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

6-Year-Old Evenflo Right Fit Belted, Forward Seat Track

6-Year-Old Evenflo Right Fit Belted, Middle Seat Track

6-Year-Old Evenflo Right Fit Belted, Rearward Seat Track

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3-Year-Old Unbelted, Forward Seat Track, Position 5

3-Year-Old Unbelted, Forward Seat Track, Position 6

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3-Year-Old Unbelted, Middle Seat Track, Position 1

3-Year-Old Unbelted, Middle Seat Track, Position 2

3-Year-Old Unbelted, Middle Seat Track, Position 3

3-Year-Old Unbelted, Middle Seat Track, Position 4

3-Year-Old Unbelted, Middle Seat Track, Position 5

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Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

6-Year-Old Unbelted, Forward Seat Track, Position 1

6-Year-Old Unbelted, Forward Seat Track, Position 2

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6-Year-Old Unbelted, Middle Seat Track, Position 4

DOT/NHTSA 208 Suppression Test - 2005 Hyundai Santa Fe (C50510) Post Recall Suppression

6 Year Old No CRS

6-Year-Old Unbelted, Rearward Seat Track, Position 1

6-Year-Old Unbelted, Rearward Seat Track, Position 2

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DOT/NHTSA 208 Suppression Test - 2005 Hyundai Santa Fe (C50510) Post Recall Suppression

6 Year Old No CRS

Unbelted 5th Percentile Female Reactivation,
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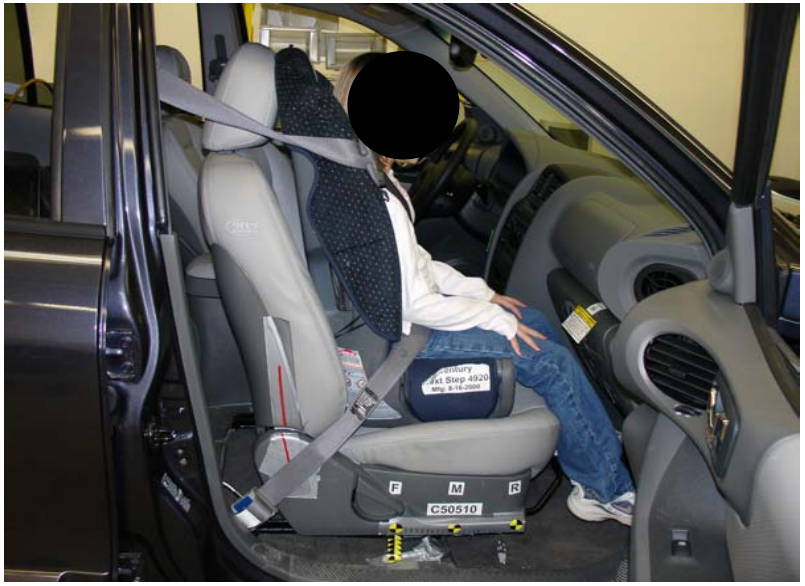
Photo No. E-49.	6-Year-Old Belted, Forward Seat Track, Position 4, Human Subject 14	E5-14
Photo No. E-50.	6-Year-Old Belted, Forward Seat Track, Position 4, Human Subject 14	E5-14
Photo No. E-51.	6-Year-Old Belted, Middle Seat Track, Position 4, Human Subject 14	E5-14
Photo No. E-52.	6-Year-Old Belted, Rearward Seat Track, Position 4, Human Subject 14	E5-15
Photo No. E-53.	6-Year-Old Belted, Rearward Seat Track, Position 4, Human Subject 14	E5-15
Photo No. E-54.	6-Year-Old Belted, Rearward Seat Track, Position 4, Human Subject 14	E5-15
Photo No. E-55.	6-Year-Old Belted, Rearward Seat Track, Position 4, Human Subject 14	E5-15
Photo No. E-56.	6-Year-Old Belted, Rearward Seat Track, Position 4, Human Subject 14	E5-16
Photo No. E-57.	6-Year-Old Belted, Rearward Seat Track, Position 4, Human Subject 14	E5-16



6-Year-Old Century Next Step Belted, Forward Seat Track, Human Subject 09

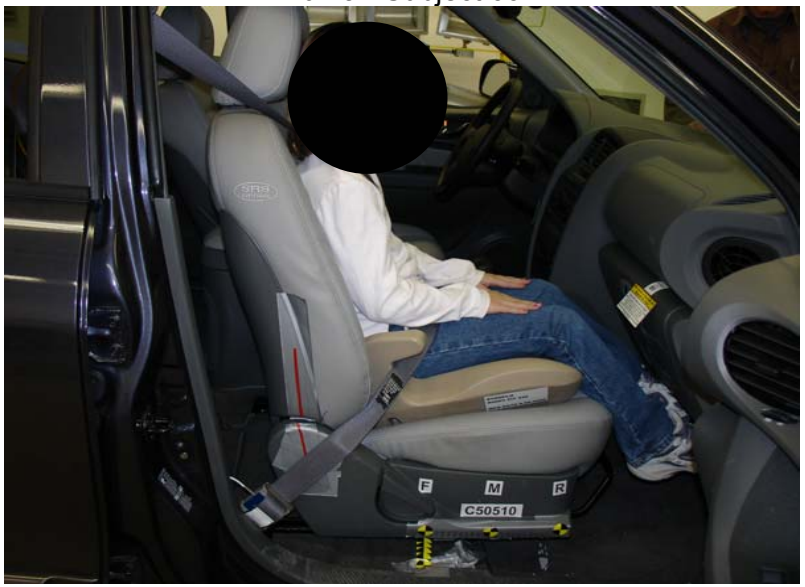
6-Year-Old Century Next Step Belted, Middle Seat Track, Human Subject 09

6-Year-Old Century Next Step Belted, Rearward Seat Track, Human Subject 09

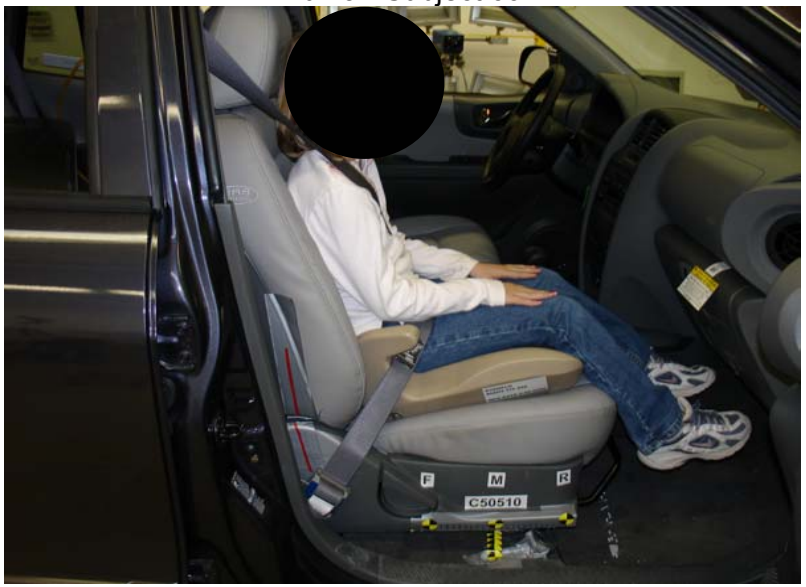
6-Year-Old Cosco High Back Belted, Forward Seat Track, Human Subject 09

6-Year-Old Cosco High Back Belted, Middle Seat Track, Human Subject 09

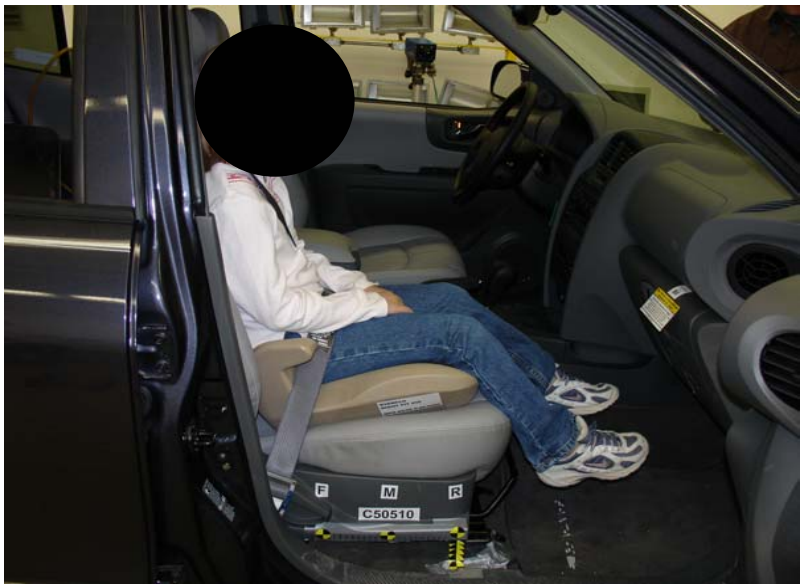
6-Year-Old Cosco High Back Belted, Rearward Seat Track, Human Subject 09



6-Year-Old Evenflo Right Fit Belted, Forward Seat Track, Human Subject 09



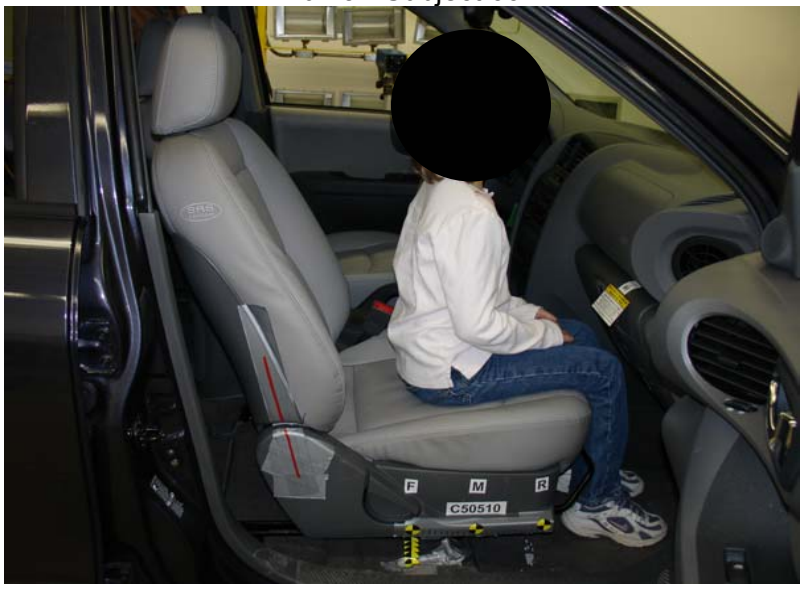
6-Year-Old Evenflo Right Fit Belted, Middle Seat Track, Human Subject 09



6-Year-Old Evenflo Right Fit Belted, Rearward Seat Track, Human Subject 09

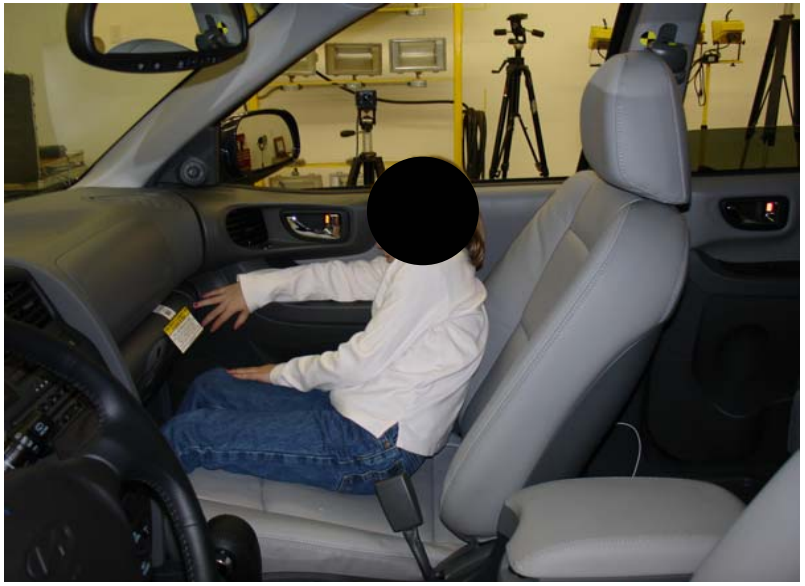
6-Year-Old Unbelted, Forward Seat Track, Position 1,
Human Subject 09

6-Year-Old Unbelted, Forward Seat Track, Position 2,
Human Subject 09



6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Forward Seat Track, Position 9,
Human Subject 09



6-Year-Old Unbelted, Forward Seat Track, Position 9, View 2, Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 1, Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 2, Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 4, Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 9,
Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 9, View 2,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 1,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 2,
Human Subject 09

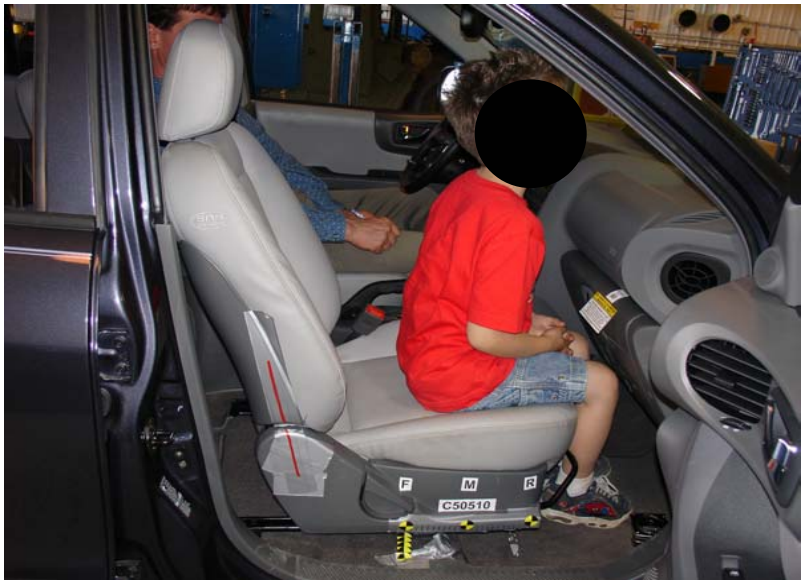
6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 9,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 9, View 2,
Human Subject 09

Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 06



6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 06

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 06

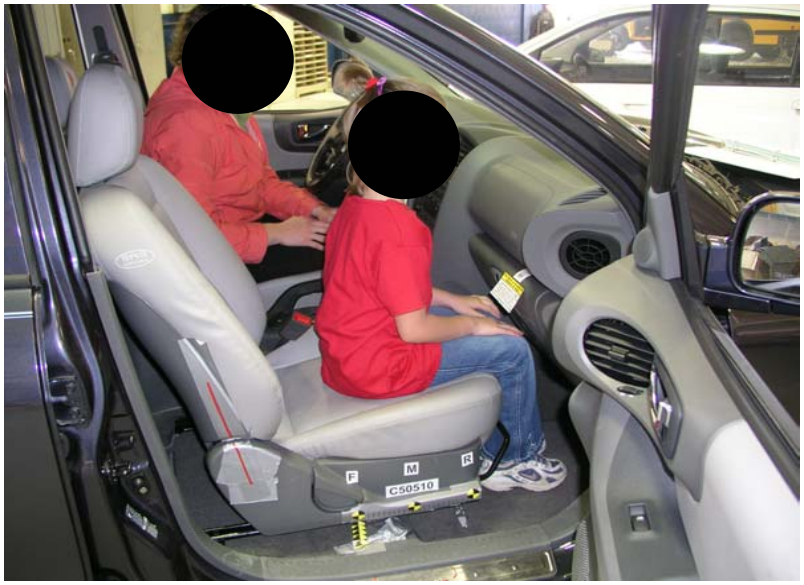
6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 06

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 06

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 06

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 06

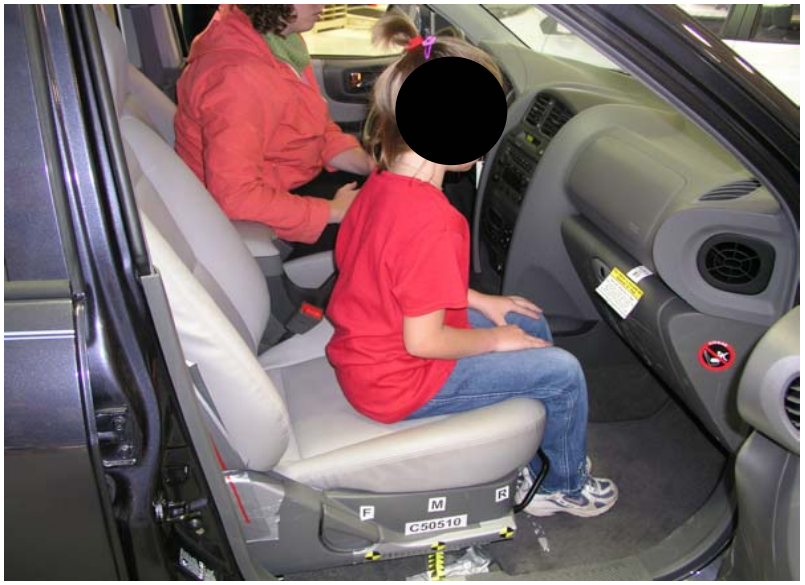
6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09



6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 09

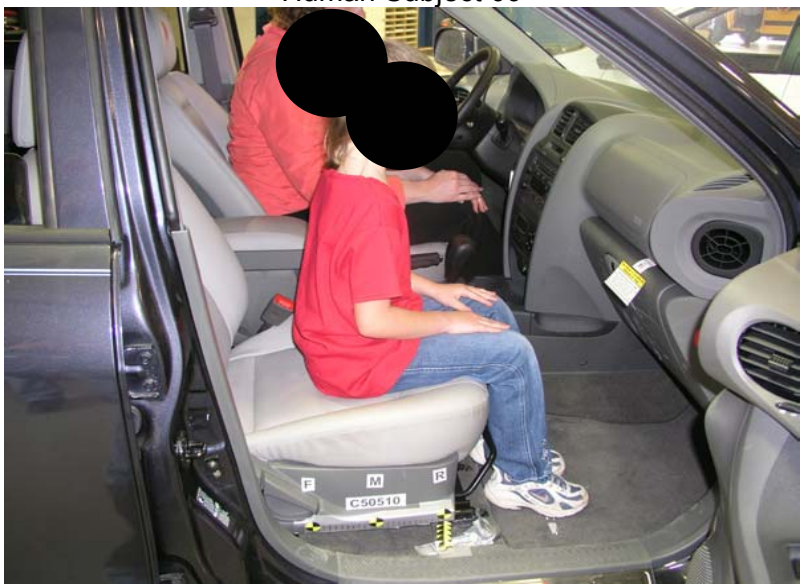
6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 09



6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09



6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 09

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 14

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 14

6-Year-Old Unbelted, Forward Seat Track, Position 4,
Human Subject 14

6-Year-Old Unbelted, Middle Seat Track, Position 4,
Human Subject 14

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 14

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 14

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 14

6-Year-Old Unbelted, Rearward Seat Track, Position 4, Human Subject 14

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 14

6-Year-Old Unbelted, Rearward Seat Track, Position 4,
Human Subject 14

APPENDIX F

INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO. 505

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	G04-Z34	Entran	11/22/05
Head Y	G29-X12	Entran	11/22/05
Head Z	G29-X58	Entran	11/22/05
Neck Load Cell	1673	Denton	01/06/06
Chest X	F25-L05	Entran	11/22/05
Chest Y	G29-X20	Entran	11/22/05
Chest Z	H11-L04	Entran	11/22/05
Chest Displacement	505	Servo	02/08/06
Left Femur Load Cell	992	Denton	04/03/06
Right Femur Load Cell	988	Denton	04/03/06

INSTRUMENTS FOR PASSENGER DUMMY NO. 511

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P49475	Endevco	04/04/06
Head Y	P49477	Endevco	04/04/06
Head Z	P49476	Endevco	04/04/06
Neck Load Cell	1516	Denton	02/28/06
Chest X	P49478	Endevco	04/04/06
Chest Y	P49470	Endevco	04/04/06
Chest Z	P49506	Endevco	04/04/06
Chest Displacement	511	Servo	04/11/06
Left Femur Load Cell	996	Denton	04/03/06
Right Femur Load Cell	994	Denton	04/03/06

INSTRUMENTS FOR LOW RISK 5TH FEMALE DUMMY NO. 511 (P1)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AJ819	Endevco	01/26/05
Head Y	AJ9J7	Endevco	01/26/05
Head Z	AJ7A2	Endevco	01/26/05
Neck Load Cell	253	Denton	11/15/04
Chest X	ACCW9	Endevco	04/29/05
Chest Y	AAMN8	Endevco	04/29/05
Chest Z	ACC61	Endevco	04/29/05
Chest Displacement	511	Servo	12/23/04
Left Femur Load Cell	9427	GSE	03/07/05
Right Femur Load Cell	9428	GSE	03/07/05

INSTRUMENTS FOR LOW RISK 5TH FEMALE DUMMY NO. 505 (P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	G04-Z34	Entran	11/22/05
Head Y	G29-X12	Entran	11/22/05
Head Z	G29-X58	Entran	11/22/05
Neck Load Cell	1562	Denton	10/27/05
Chest X	F25-L05	Entran	11/22/05
Chest Y	G29-X20	Entran	11/22/05
Chest Z	H11-L04	Entran	11/22/05
Chest Displacement	505	Servo	02/08/06
Left Femur Load Cell	959	GSE	02/08/06
Right Femur Load Cell	950	GSE	02/08/06

VEHICLE INSTRUMENTS

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	B28-Z15	Entran	03/09/06
Right Rear Seat Crossmember X	J26-H03	Entran	02/03/06
Top of Engine X	F29-X19	Entran	01/13/06
Bottom of Engine X	H06-L13	Entran	12/07/05
Left Brake Caliper X	E05-Z30	Entran	12/16/05
Right Brake Caliper X	C21-G24	Entran	04/10/06
Instrument Panel X	A27-Z03	Entran	01/18/06
Trunk Z	L02-Z37	Entran	01/20/06